BLM

U.S. Department of the Interior
Bureau of Land Management

Preliminary Environmental Assessment

Newark and Huntington Watersheds Implementation and Restoration Plan

November 2013

DOI-BLM-NV-L010–2012–0033–EA

PREPARING OFFICE

U.S. Department of the Interior
Bureau of Land Management
Egan Field Office
702 N. Industrial Way
HC 33 Box 33500
Ely, NV 89301 United States
775–289–1800

Preliminary Environmental Assessment

Newark and Huntington Watersheds Implementation and Restoration Plan

November 2013

This page intentionally
left blank

Table of Contents

This page intentionally
left blank

List of Figures

This page intentionally
left blank

List of Maps

This page intentionally
left blank

List of Tables

This page intentionally
left blank

Chapter 1. Introduction

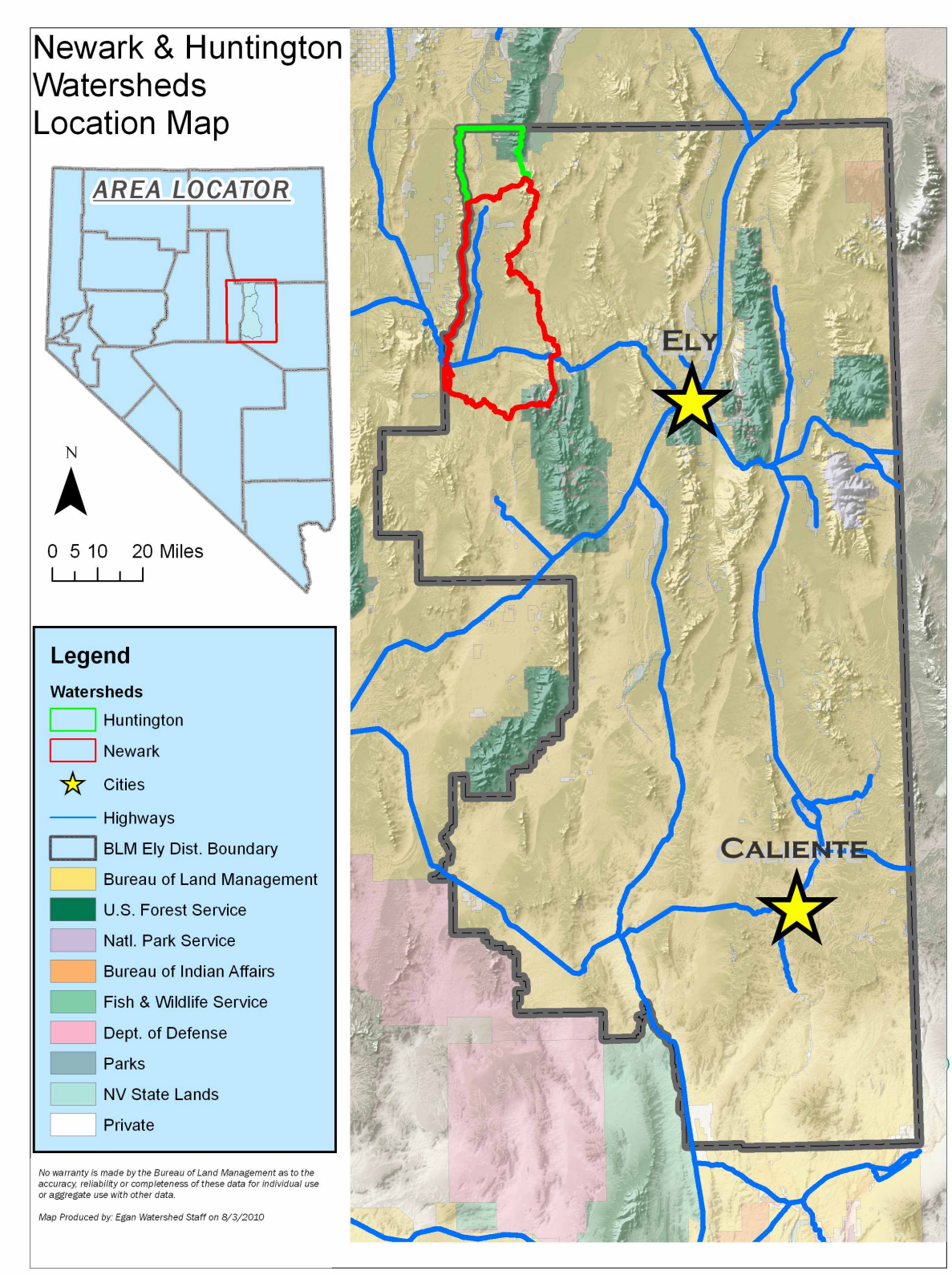
This page intentionally
left blank

This document identifies issues, analyzes alternatives, and discloses the potential environmental impacts associated with the proposed watershed projects identified in the Newark and Huntington Watersheds Implementation Plan (Plan).

1.1. Identifying Information

1.1.1. Location of Proposed Action:

The Newark and Huntington Watersheds are adjacent to each other and located in the northwest corner of White Pine County (see Map 1.1 Location Map page 2). The Newark and Huntington Watersheds lie within the Egan Field Office Area of the Ely District, Bureau of Land Management (BLM). BLM administers approximately 482,389 acres within the Newark Watershed and approximately 95,139 acres within the Huntington Watershed.



Map 1.1. Location Map

1.2. Background

The Ely District Record of Decision and Approved Resource Management Plan (Ely RMP) (August 2008) divided the planning area into 61 watershed management units with the goal to manage watersheds to achieve and maintain resource functions and conditions required for healthy lands and sustainable uses. The Newark Watershed and the Huntington Watershed were identified as high priority watersheds in the approved RMP. In 2011, the Egan Field Office completed the Newark & Huntington Watersheds Analysis. The Newark & Huntington Watersheds Implementation and Management Plan was completed in 2013.

The watershed analysis characterized the human, physical and biological features, conditions, processes and interactions within these watersheds; provided a systematic way to understand and organize ecosystem information; enhanced our ability to estimate direct, indirect and cumulative effects of management activities; and guided the general type, location, and sequence of appropriate management activities within these watersheds through the Plan. The watershed analysis was not an inventory process, nor was it a detailed study of everything in the watershed. The Newark & Huntington Watersheds Analysis was built around the most important issues as identified by an interdisciplinary team of specialists.

Those actions identified within the Plan that meet the objectives for watershed health, including vegetation restoration, riparian restoration, and range improvements, are included in the proposed action for this environmental assessment (EA).

Objectives include:

- Move the landscapes within the watersheds towards Fire Regime Condition Class (FRCC) 1, with a mosaic of seral stages attaining the potential cover percentages of grasses and forbs for the respective biophysical setting models.
- Improve the chemical, physical, and biological integrity of riparian areas to maintain healthy ecological systems and provide values that support multiple uses.
- Improve habitat for all wildlife, especially sage grouse and big game species habitat.
- Improve habitat for wild horses within the Herd Management Areas (HMA).
- Achieve better distribution for livestock, wild horses and wildlife, and improve overall rangeland health.

1.3. Purpose and Need for Action:

The purpose of the action is to implement the Plan so that there is a landscape scale improvement to upland vegetation and riparian areas within the watersheds. The need for the action is to manage watersheds so that they display physical and biological conditions or functions required for necessary ecological components to achieve state water quality criteria, maintain ecological processes and sustain appropriate uses.

1.3.1. Decision to be Made

The BLM will decide whether or not to implement all or part of the Newark and Huntington Watershed Implementation Plan.

1.4. Relationship to Planning

The project is in conformance with the Ely District Record of Decision and Approved Resource Management Plan (August 2008). The proposals being considered in this EA would help in achieving the following resource management goals identified in the Ely RMP:

Vegetation Resources

Manage vegetation resources to achieve or maintain resistant and resilient ecological conditions while providing for sustainable multiple uses and options for the future across the landscape.

Forest/Woodland Products

Provide opportunities for traditional and non-traditional uses of vegetation products on a sustainable, multiple-use basis.

Watershed

Manage watersheds to achieve and maintain resource functions and conditions required for healthy lands and sustainable uses.

Fire

Return fire to its natural role in the ecological system and implement fuels treatments, where applicable, to aid in returning fire to the ecological system.

Fish and Wildlife

Provide habitat for wildlife (i.e. forage, water, cover, and space) and fisheries that is of sufficient quality and quantity to support productive and diverse wildlife and fish populations, in a manner consistent with the principles of multi-use management, and to sustain the ecological, economic, and social values necessary for all species.

Special Status Species

Manage public lands to conserve, maintain, and restore special status species populations and their habitats; support the recovery of federally listed threatened and endangered species; and preclude the need to list additional species.

Wild Horses

Herd management areas are able to provide suitable feed, water, cover and living space for wild horses and maintain historic patterns of habitat use.

The project is in conformance with the following specific objectives and management decisions:

Vegetation Resources

General Vegetation Management:

VEG-1: Emphasize treatment areas that have the best potential to maintain desired conditions or respond and return to the desired range of conditions and mosaic upon the landscape, using all available current or future tools and techniques.

VEG-4: Design management strategies to achieve plant composition within the desired range of conditions for vegetation communities, and emphasize plant and animal community health at the mid scale (watershed level).

Wild Horses

Goal: Maintain and manage healthy, self-sustaining wild horse herds inside herd management areas within appropriate management levels to ensure a thriving natural ecological balance while preserving a multiple-use relationship.

Objectives: To maintain wild horse herds at appropriate management levels within herd management areas where sufficient habitat resources exist to sustain healthy populations at those levels.

Fish and Wildlife

General Wildlife Habitat Management:

WL-1: Emphasize management of priority habitats for priority species.

Special Status Species

Parameter: Great Basin Sagebrush Habitat

SS-38: Maintain intact and quality sagebrush habitat. Prioritize habitat maintenance actions from the BLM National Sage Grouse Conservation Strategy to: 1) maintain large areas of high quality sagebrush currently occupied by greater sage-grouse; 2) maintain habitats which connect seasonal sagebrush habitats in occupied source habitats; and 3) maintain habitats that connect seasonal sagebrush habitats in occupied isolated habitats.

SS-39: Implement proactive and large scale management actions to restore lost, degraded, or fragmented sagebrush habitats and increase greater sage-grouse populations. Prioritize habitat restoration actions from the BLM National Sage Grouse Conservation Strategy to: 1) reconnect large patches of high quality seasonal habitats, which greater sage-grouse currently occupy; 2) enlarge sagebrush habitat in areas greater sage-grouse currently occupy; 3) reconnect stronghold/source habitats currently occupied by greater sage-grouse with isolated habitats currently occupied by greater sage-grouse; 4) reconnect currently occupied and isolated habitats; 5) restore potential sagebrush habitats that currently are not occupied by greater sage-grouse. Develop allowable use restrictions in greater sage-grouse habitats undergoing restoration, on a case-by-case basis, as dictated by monitoring.

Fire

Management Actions–Fire

FM-4: Incorporate and utilize Fire Regime Condition Class as a major component in fire and fuels management activities. Use Fire Regime Condition Class ratings in conjunction with

vegetation objectives (see the discussion on Vegetation Resources) and other resource objectives to determine appropriate response to wildland fires and to help determine where to utilize prescribed fire, wildland fire use, or other non-fire (e.g., mechanical) fuels treatments.

FM-5: In addition to fire, implement mechanical, biological, and chemical treatments along with other tools and techniques to achieve vegetation, fuels, and other resource objectives.

This EA is tiered to the analysis and effects disclosed in:

- The Ely Proposed Resource Management Plan/Final Environmental Impact Statement (November 2007).
- The Final Programmatic Environmental Impact Statement (PEIS) – Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States (2007).

1.5. Relationship to Statutes, Regulations, or other Plans

The proposal is also consistent with other Federal, State and local plans or decisions including, but not limited to, the following:

The White Pine County Public Land Policy Plan (August 2007) which identifies the following policies:

- *Policy 2-2:* Protect and preserve the quality of the environment, and economic, cultural, ecological, scenic, historical and archeological values; protect and preserve wildlife habitat values compatible with economic opportunities needed to provide for long term benefits for the people of White Pine County now, and future generations.
- *Policy 2-4:* Support the Great Basin Restoration Initiative.
- *Policy 5-3:* Support the management of woodlands/forest by ecological condition for a diversity of vegetation communities. Grass and shrub ecosystems with no or few invasive species are preferable to pinyon/juniper monocultures.
- *Policy 5-5:* Recognize the importance of maintaining healthy aspen communities and encourages activities that will retain and improve the vigor of these communities.
- *Policy 9-7:* Support habitat restoration to improve wildlife habitat when compatible with other uses.

The White Pine County Elk Management Plan (2007 Revision) was developed by a Technical Review Team (TRT) that consisted of representatives from the United States Forest Service (USFS), the Bureau of Land Management (BLM), the National Park Service (NPS), the Natural Resources Conservation Service (NRCS), Nevada Division of Wildlife (NDOW), sportsmen, ranchers, general public, conservationists and the Goshute Indian Tribe. The plan identified vegetation conversion projects by NDOW management units that would improve wildlife habitat by creating a more diverse mixture of grasses, forbs and shrubs. The project area lies within NDOW Management Units 103, 108, 131 and 144. Elk numbers have been achieved in these units where appropriate. Possible projects/opportunities listed in the plan for this area include "large potential for prescribed fire or thinning in pinyon-juniper communities." The health of aspen stands within the unit was cited as a potential limitation to management.

White Pine County Portion (Lincoln/White Pine Planning Area) Sage Grouse Conservation Plan (2004) (page 21) – "Goal 3: Manage for diverse, healthy, sagebrush plant communities in each PMU"

Greater Sage-Grouse Conservation Plan for Nevada and Eastern California First Edition (June 30, 2004) — Create healthy, self-sustaining sage-grouse populations well distributed throughout the species historic range by maintaining and restoring ecologically diverse, sustainable, and contiguous sagebrush ecosystems and by implementing*scientifically-sound management practices.*

State Protocol Agreement between the Bureau of Land Management, Nevada and the Nevada State Historic Preservation Office (SHPO) for implementing the National Historic Preservation Act (2009).

The Standards and Guidelines for Nevada's Northeastern Great Basin (page 13) states in part, "Create and maintain a diversity of sagebrush age and cover classes on the landscape through the use of prescribed fire, prescribed natural fire, mechanical, biological and/or chemical means to provide a variety of habitats and productivity conditions" and "Where pinyon pine and/or juniper trees have encroached into sagebrush communities, use best management practices to remove trees and re-establish understory species".

1.6. Scoping, Public Involvement and Issues

This project was initially scoped internally by the Egan Field Office Interdisciplinary (ID) Team/Resource Specialists on May 21, 2012

Tribal Coordination Letters are being sent out in concurrently with the public comment period for this Preliminary EA notifying the tribes of a 30-day consultation and comment period.

In addition, a letter to individuals and entities that had previously expressed interest in the watershed analysis process was mailed on February 28, 2013 providing a summary of the projects identified in the Plan. In this letter, these interested publics were solicited for input regarding potential alternatives to affect change within the watershed to enhance the condition of the resources. Two responses were received from the interested publics. One letter expressed a desire to continue to be updated on the project, the other expressed a variety of concerns. Those concerns are summarized in the next section.

This project proposal was posted on the National BLM NEPA Register website on February 25, 2013.

1.6.1. Issues Raised

The following alternatives and issues are analyzed within this EA as a result of internal scoping and from comments received during external scoping:

Internal Scoping

- Concern about the long term viability of mule deer *(Odocoileus hemionus),* particularly the Ruby Mountain Range (Management Area 10) herd which migrates from Elko County through Huntington and Newark Valleys to south of Highway 50.

- Concern about the greater sage grouse *(Centrocercus urophasianus)*, a species which has been deemed warranted for listing on the Endangered Species Act by the U.S. Fish and Wildlife Service (FWS), and which has known occurrences within the watersheds.

External Scoping

- Concern about detailed analysis and monitoring of past vegetation treatments.
- Alternative for selective cutting of marked younger trees near sage grouse leks.
- Concerns regarding large-scale changes with de-watering of aquifers through mine aquifer draw down, powerline or other utility infrastructure; links to biomass use; livestock grazing impacts, impacts from temporary and permanent fencing; and weeds.
- Use of herbicides, particularly Tebuthiuron.
- Alternatives for passive restoration and treatments including limiting livestock grazing, livestock closure to pastures with known exotic/invasive species infestations, closure to pastures "at risk" from weed invasion, livestock removal, removal of crested wheatgrass seeding and replanting sage instead, livestock facility removal, road closures, and allowing natural successional processes in plant communities.
- Impacts to sage grouse, pygmy rabbits, Wilderness, Wilderness Study Areas, Lands with Wilderness Character, riparian, special status species, soils.
- Impacts from desertification, and climate change.
- A full range of alternatives reducing cheatgrass or other weeds as hazardous fuels.
- Cumulative impacts.
- What are the current conditions in each watershed?
- Alternatives that include: a period of post-treatment rest of 5 to 10 years; and a 10% or less allowable utilization of upland vegetation.
- Developed comprehensive monitoring plan funded as part of original treatment costs.
- Use native species for seeding only.

Chapter 2. Proposed Action and Alternatives

This page intentionally
left blank

2.1. Introduction

The previous chapter presented the Purpose and Need of the proposed project, as well as the relevant issues, i.e., those elements that could potentially have a significant impact to the quality of the human environment through the implementation of the proposed project. In order to meet the purpose and need of the proposed project in a way that resolves the issues, the BLM has developed a proposed action. The proposed action, no action alternative, and alternatives considered, but eliminated from detailed analysis are presented below.

2.2. Adaptive Management

Adaptive management, as defined by the Natural Resource Council, whose definition was adopted by the Department of Interior, is a decision making process that promotes flexible decision making that can be adjusted in the face of uncertainties as outcomes from management actions and other events become better understood. Careful monitoring of these outcomes both advance scientific understanding and helps adjust policies or operations as part of an iterative learning process. Adaptive management also recognizes the importance of natural variability in contributing to ecological resilience and productivity. It is not a 'trial and error' process, but rather emphasizes learning while doing. Adaptive management does not represent an end in itself, but rather a means to achieve more effective decisions and enhanced benefits. Its true measure is in how well it helps meet environmental, social, and economic goals, increases scientific knowledge, and reduces tensions among stakeholders.

Given the long term objectives and implementation period of this project and the need to be flexible in how treatments are applied in given areas, adaptive management would be used for implementation of the Plan. Adaptive management would be used within the bounds of this analysis to achieve the objectives specified for treatments conducted.

2.3. Description of the Proposed Action:

The proposed action includes riparian improvements, vegetation treatments, and range improvements identified in the Plan.

2.3.1. Riparian Improvements

2.3.1.1. Riparian Function Improvement at Robinson Spring Complex (Section 05 T20N R55E)

The proposed action would include the re-contouring of embankments to assure water does not flow onto roads and trails as well as hardening channel crossings to preclude water being shunted onto the road surface. Redundant roads and trails could be eliminated and re-vegetated to reduce overall road density and reduce road influence on hydrologic flow paths during storm events. Wherever possible, riparian shrub species would be established or favored along natural stream channels in order to stabilize banks and retain riparian soils.

2.3.1.2. Riparian Habitat Enhancement at four springs

The proposed action includes four springs that have been identified for riparian habitat enhancement: Stinston Spring (Secton 22 T20N R55E); unnamed spring (Section 05 T21N R56E); unnamed spring (Section 29 T22N R56E); and unnamed spring (Section 21 T22N R56E). Improvements would include providing off-site watering opportunities for wildlife and/or livestock. Fencing would be used to protect spring sources, riparian soils, and/or riparian vegetation. Small experimental plots of riparian vegetation would be established with small wildlife and livestock exclosures to protect plantings.

Monitoring of riparian improvements and enhancements would be ongoing and monitoring techniques would follow BLM approved methods. These areas would be monitored to determine if objects are being met.

2.3.2. Vegetation Treatments

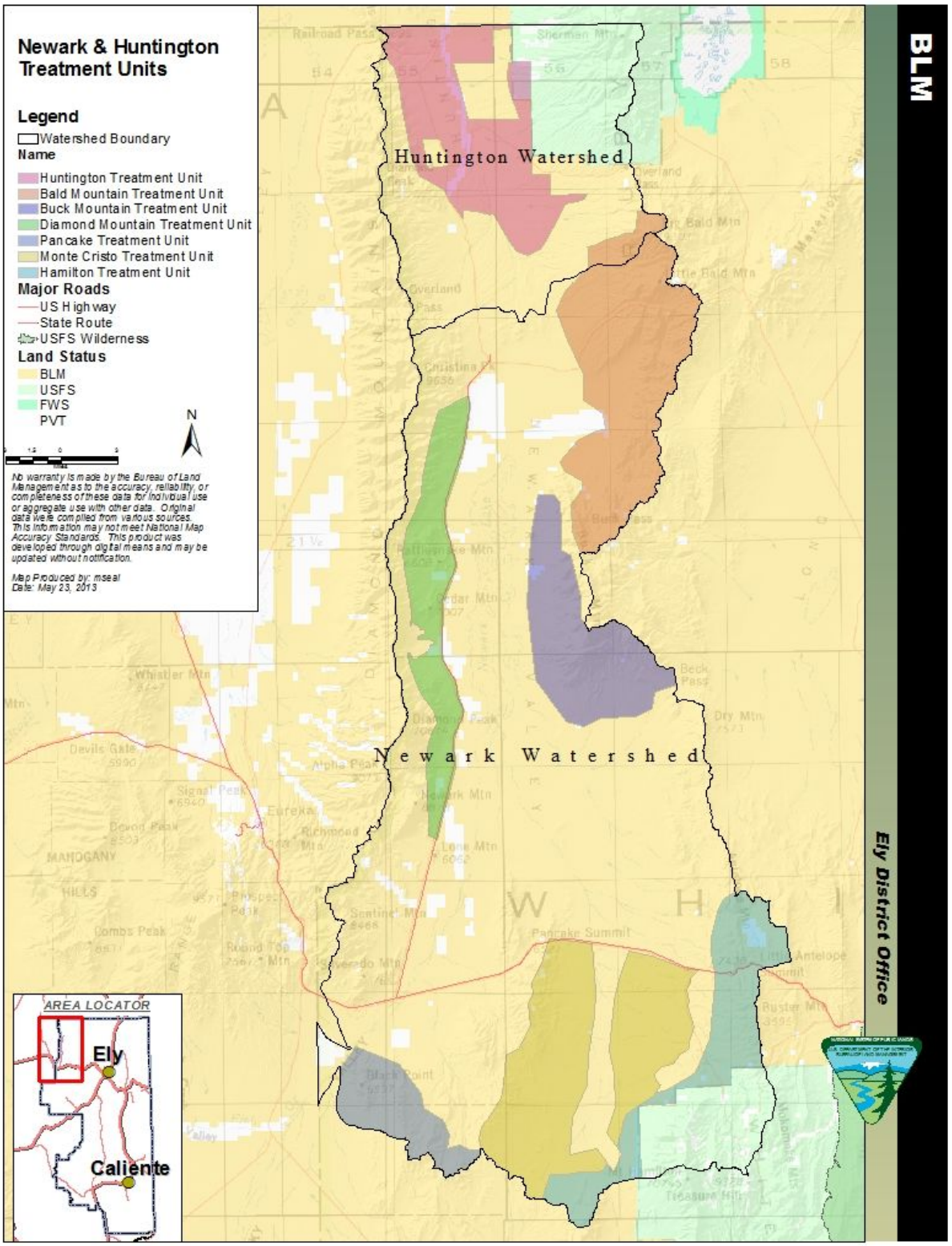
The proposed action is to treat seven vegetation treatment units, a rabbitbrush treatment strategy and an aspen treatment strategy within the watersheds to move current vegetative conditions in the selected units and aspen stands along a path towards Fire Regime Condition Class (FRCC) 1. The treatment methods would be employed in designated areas to achieve the overall objectives for the watershed and the treatment-specific objectives for each treatment unit. The units identified for treatment are listed below, and identified on Map 2.1.

Biophysical settings (BpS) are the primary environmental descriptors used for determining a landscape's natural fire regimes, vegetation characteristics, and resultant FRCC diagnoses. Treatment objectives are based on succession classes within each BpS, based on succession (seral) stage, composition, and structure (see table below). Reference conditions for each BpS are based on as many as five characteristic classes (A through E); current conditions might have additional classes (called "uncharacteristic").

Seral Stage (see "Seral")	**Composition & Structure**	
	Attribute (such as Open)	***Attribute (such as Closed)***
Post-Replacement	S-Class A	
Mid-Development	S-Class C	S-Class B
Late-Development	S-Class D	S-Class E

Figure 2.1. BpS Classes Table

The proposed action also includes a crested wheatgrass seedings management strategy to implement treatments and move crested wheatgrass seedings along a path towards the desirable conditions identified in the RMP (p. 33, Table 11).



Map 2.1. General Treatment Map

The next section demonstrates design features common to all vegetation treatments. Also each vegetation treatment unit or strategy identifies specific design features.

2.3.2.1. Treatment Restrictions Common to All Treatment Methods

Several treatment methods are proposed for use within the Newark and Huntington Watersheds. These treatment methods have been utilized within other areas of this watershed as well as other areas of the Ely District. The results of these treatments have been monitored within the area and a range of potential outcomes is understood. Appendix A lists the methods identified for each treatment area and includes a description of the method and the parameters by which it would be selected if multiple methods are identified within the same area. Primary treatments refer to treatments that would occur over large sections of the treatment area and would represent the initial treatment within each treatment unit. Following the primary treatment there may be secondary treatments implemented to achieve the objectives for the treatment unit. Secondary treatments refer to smaller more targeted treatments conducted after the primary treatment to achieve the objectives for the treatment unit. Secondary treatments would be conducted after post monitoring indicates the results of the primary treatment. Selection of the primary treatment would be based on the desired outcome, environmental conditions, as well as physical and social constraints within the area. Secondary treatments may be applied if the original objectives were not fully achieved through application of the primary treatment.

2.3.2.1.1. Timing Restrictions

1. Sage grouse – Do not allow treatments within two miles of active leks from March 1 – June 30 during breeding and nesting season.
2. Sage grouse — Do not allow treatments in winter range from November 1 — March 31.
3. Migratory birds – Avoid treatments during the migratory bird nesting season from May 1 – July 15. If treatment is to be implemented during the nesting season, a biologist would determine the appropriate survey methods (timing, frequency, etc.) and restrictions needed prior to implementation to minimize impacts to migratory birds.
4. Raptors – Avoid conducting treatments from April 15 – July 15 within a half-mile of active raptor nests, unless nest has been determined inactive for at least 5 years.
5. Big Game – Avoid conducting treatments within big game calving/fawning/kidding grounds and crucial summer range from April 15 – June 30. If treatment is to be implemented during this time, a biologist would determine the appropriate survey methods (timing, frequency, etc.) and restrictions needed prior to implementation to minimize impacts.

2.3.2.1.2. Treatment Design Restrictions

1. Sagebrush treatments should be in a mosaic/strip pattern and seeded if there is no existing herbaceous understory.
2. For sagebrush treatments in areas that consist of pygmy rabbit or winter sage grouse habitat a biologist would be consulted regarding treatments and restrictions needed prior to implementation to minimize short term impacts to pygmy rabbits and sage grouse.
3. No vegetation treatments within a quarter mile of an active sage grouse lek (with the exception of pinyon and juniper removal). If treatment is to be implemented within this buffer, a biologist would be coordinated with to determine the appropriate level of treatment and restrictions needed prior to implementation.

4. Do not treat more than 20% of sage grouse breeding habitat in a given period of time, allowing for sagebrush stands to recover and for a mosaic of sagebrush age classes. Additional treatments should be deferred until the treated area provides suitable habitat (15%-25% sagebrush cover and greater than 10% herbaceous cover). (Connelly et al. 2000).
5. Avoid removal of pinyon pine and juniper displaying old-growth characteristics. Old-growth characteristics generally include trees displaying a combination of the following: broad asymmetric tops, deeply furrowed bark, twisted trunks or branches, dead branches and spike tops, large lower limbs, hollow trunks (mostly in juniper), large trunk diameter relative to tree height, and branches covered with lichen.

2.3.2.1.3. Visual Resource Restrictions

Most of the treatment units are within Visual Resource Management (VRM) class II areas where the objectives are to retain the existing character of the landscape, allowed change is low and activities may be visible, but should not attract attention of the casual observer. To meet these objectives the following design criteria would be followed when designing vegetation treatment.

Mechanical treatments would include runners of trees along the drainages and islands of trees to achieve a natural appearance to meet VRM objectives. This represents a “natural” appearance of the interface between woodland sites above and rangeland sites below with runners of trees along the drainages. Prior to project implementation, stringers and islands would be mapped to produce a mosaic pattern.

Treatments within the view shed of the Pony Express Trail would require coordination with the visual resource specialist to reduce short term impacts.

2.3.2.1.4. Cultural Restrictions

All treatment areas that create surface disturbance would be inventoried for cultural resources to identify eligible (Historic Properties) and potentially sensitive sites prior to implementing treatments. Prior to treatment, any possible Traditional Cultural Properties would be identified. An archaeologist would review any potential properties found to determine appropriate mitigation.

A Cultural Needs Assessment would be completed for each treatment unit prior to implementation of any treatment. Identified cultural sites would be recorded and evaluated to determine eligibility for the National Register of Historic Places (NRHP). Eligible cultural resources would be avoided or impacts mitigated as necessary before any surface disturbing treatments are initiated. Historic mining districts and mines would also be identified for the safety of crews working in the area. A standard 20-meter buffer would be in place for any treatments utilizing heavy equipment or for removal of flammable material surrounding cultural sites that may be affected by fire or heat preceding ignition of a prescribed fire. A hand-cut fireline may also be created surrounding the 20-meter buffer for prescribed fire. Burn piles would be located in previously disturbed areas or, if not available, an archaeologist would survey the area to identify any avoidance areas for the placement of the piles. Prior to aspen treatments, a survey would be conducted for arborglyphs and an archaeologist would review to determine appropriate mitigation.

A Class III cultural resource inventory would be required for any treatments that include the use of vehicles or heavy equipment or when all-terrain vehicles (ATVs) are used for more than a one-time application of chemical treatments. A mosaic pattern would be designed for any mechanical treatments to avoid any cultural sites identified during the Class III inventory.

Avoidance areas that would not be treated would be irregularly shaped and blended with the landscape. No Class III cultural resource inventory would be required for hand cutting treatments if the trees were cut, dropped, and hand-carried off of the site. A Class I cultural resource inventory would be required when ATVs are used for a one-time application of chemical treatments and travel routes would avoid all known cultural sites. A Class I cultural resource inventory would also be required prior to ignition of prescribed fire and within 24 hours of a naturally ignited fire to determine if any burnable or fire-sensitive resources are present.

2.3.2.1.5. Mineral Restrictions

A survey for mining claim markers in documented active claim sites would be conducted prior to implementing treatments. All active mining claim marker locations and tag information would be recorded. Active mining claim markers or stakes would be avoided to the extent practical. Active mining claim markers that are destroyed by prescribed burning, thinning, or chaining operations would be re-staked using a legal mining claim marker. The re-staking of mining claim markers would occur in coordination with the existing mining claimants to ensure accurate, legal staking procedures that would minimize damage to claims.

If any mining sites or dumps are discovered within the project area, operations would avoid these sites in order to minimize risk from potentially hazardous materials or mine features. Sites would also be reported to the Ely District Hazardous Materials Coordinator.

2.3.2.1.6. Travel Restrictions

No new roads would be constructed or created during project implementation. Off-road travel with heavy equipment and vehicles would occur during implementation. Loading and unloading any equipment would occur on existing roads to minimize off-road disturbances and impacts. If determined necessary, signs would be posted along roads within or adjacent to treatment units in regards to travel restrictions to assist in mitigating impacts from future cross country travel. Off-road travel would be authorized for harvest of biomass/fuelwood/posts by the public or contractors in treatment units where the objective is to reduce pinion and/or juniper. This action would only be authorized by the authorized officer and subject to the following considerations and restrictions that would be determined at the time of authorization:

- Vehicle size limitations
- Timing restrictions
- Avoidance areas for sensitive resources
- Soil conditions
- Off-road travel would not be authorized for the duration of grazing closure for the same area, if applicable.
- Off-road travel would be allowed until the biomass has been removed as authorized by the authorized officer and not to exceed a period of five years following the opening of the area for off-road fuelwood/posts collection.

2.3.2.1.7. Grazing Restrictions

Coordination with the affected livestock permittees within the allotments being treated would be conducted prior to any treatment occurring. Any livestock grazing closure for the purpose of the vegetation treatment would be done through the grazing decision or agreement process and would occur prior to the treatment. Livestock grazing would not be authorized within the treatment

areas during implementation of treatments. Livestock grazing would resume immediately within treatment areas that exhibit at least 10 percent foliar cover of desirable perennial grasses and forbs. Seeded areas would be closed to livestock grazing for a minimum of two growing seasons or until the following vegetation objectives have been met:

- A minimum of five or more desirable perennial plants per square meter would be firmly rooted in the treated area. Desirable perennial plants are those plants that are native or introduced and have the ability to maintain ecosystem processes and provide forage for livestock and wild horses, and provide wildlife habitat.
- In aspen (*Populus tremuloides*) stands, livestock grazing would not be scheduled following treatment for two complete growing seasons or until the following vegetation objective has been achieved: Regeneration of 350 aspen shrub phase stems per acre and 175 saplings per acre greater than 1.5 inches diameter at breast height (DBH).

Coordination with the wild horse specialist would occur during treatments so that timing of treatments can occur when wild horses are less likely to have impacts to treatments to the extent possible. Temporary fencing may also be used to reduce wild horse impacts.

Monitoring sites would be established prior to project implementation however, additional sites may be established within one year following treatment completion. Monitoring locations would be measured annually during the livestock grazing closure period. The closure period may be extended until vegetation objectives have been met. At that time livestock grazing would resume as permitted.

An interdisciplinary team would conduct a review of the resource monitoring data and objectives to determine when livestock grazing would resume within the project area. If environmental factors prevent attainment of resource management objectives following the mandatory rest period, an interdisciplinary team would review resource monitoring data and determine an appropriate grazing regime with the permittee. Any terms and conditions specific to livestock grazing within the project area would also be coordinated with the permittee and authorized through an agreement or decision.

2.3.2.1.8. Hydrology Restrictions

Crossing perennial, intermittent, orephemeral drainage features would be avoided unless deemed absolutely necessary. If it is deemed necessary to cross these features, crossing locations would be coordinated with the appropriate technical specialist regarding crossing locations. If the crossing or entering of ephemeral features must be undertaken, ingress and egress would be as close to 90 degrees to draw long-axis as possible and with as little bank disturbance as practicable. Slash or woody material of sufficient size and depth could be placed in ephemeral drainage features to protect banks and draw bottoms at designated crossing sites and would be removed when the crossing is no longer needed. Re-contouring of drainage feature banks or bottoms would occur as needed following completion of treatment, restoration of drainage crossing, or otherwise as identified by project manager.

2.3.2.1.9. Cadastral Restrictions

In accordance with IM-NV-2007-003, surveys would be conducted for cadastral monument and markers prior to any surface disturbing activities and if they are disturbed, they would be restored after treatment where possible.

2.3.2.1.10. Private Land Restrictions

There are private lands located within the boundaries of proposed treatment units. These private lands would not be treated unless a cooperative agreement is in place between the BLM and the landholder.

2.3.2.1.11. Air Quality Restrictions

A smoke permit would be required for implementation of prescribed fire, and wildfire for resource benefit treatments in accordance with the following documents:

- BLM Handbook H-9214-1 Prescribed Fire Management Handbook
- Interagency Prescribed Fire Planning and Implementation Procedures Guide, 2003, Modified
- NWCG Interagency Incident Business Management Handbook, PMS 902, NFES 3139
- Wildland Fire Use Implementation Procedures and Reference Guide, 2005, Modified
- Interagency Strategy for the Implementation of Federal Wildland Fire Management Policy, 2003

2.3.2.1.12. Non-Native Invasive and Noxious Species

A weed risk assessment would be completed prior to each treatment in order to identify current weed populations at the time of the treatment. Stipulations identified in the Weed Risk Assessment and the Ely District Integrated Weed Management Plan and Environmental Assessment (DOI-BLM-NV-L000-2009-0010-EA) would be carried out at the time of implementation within each treatment unit.

Management of weeds would include best management practices for early detection and to prevent spread; and treatments to control current populations and any new weed populations discovered during the life of the project. Treatments could include biological controls, targeted grazing, mechanical controls and herbicide. For biological controls only the release of U.S. Department of Agriculture (USDA) - Animal and Plant Health Inspection Service approved insects or pathogens would be used and would be accompanied by a BLM Biological Control Agent Release Proposal. Targeted grazing would only be used to suppress large patches of cheatgrass (*Bromus tectorum*) that are hindering successful recovery of desired plant species. Sheep, cattle, or goats may be used as long as the animals are intensely managed and removed when the targeted invasive species is reduced to a level that effectively restricts the invasive species recovery and allows for desired plant species to establish. Timing and intensity for this treatment would be determined by the District Weed Coordinator. Timing restrictions would apply when using targeted grazing to reduce impacts to desired plant species. Targeted grazing would only be allowed during early spring green up when cheatgrass has emerged and other desired grasses are mostly dormant, or in the fall after desired grasses and forbs become dormant.

Mechanical treatments may include hand pulling, mowing, cutting using hand or chainsaw, and prescribed fire. Chemical treatments could be used to target cheatgrass or newly discovered noxious and invasive weeds within the vegetative treatments areas. Any herbicide treatments would require a Pesticide Use Report submitted to the BLM Nevada State Office following implementation. Herbicide treatments for weeds would include the potential use of all BLM approved herbicides and surfactants, both in the BLM Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (EIS) and Record of Decision (BLM 2007), and any herbicides approved in the future

using the protocol for identifying, evaluating, and using new herbicides as described in that EIS. Depending on chemical, size of the area and acceptable amount of drift, applications of treatments could include backpack application, pack animal tank application, ATV/UTV tank application, truck or tractor tank application, and/or aerial application.

2.3.2.1.13. Right-of-way Restrictions

All utility lines and other rights-of-way (ROW) structures would be avoided during implementation, depending on the selected treatment type. Above ground structures associated with buried utility lines would also be avoided. Any potential ROW holders within the treatment units would be notified prior to implementation.

2.3.2.2. Huntington Treatment Unit

The Huntington treatment unit consists of a total of 38,575 acres and 25% of that area (~ 9,650 acres) would be targeted for treatment. Primary treatment types would include:

- Mechanical sagebrush treatments
- Chemical treatments: Tebuthiuron for suppression of sagebrush
- Seeding

Adaptive management is part of the proposed action and allows the use of secondary treatments to achieve the objectives set forth for the treatment unit. Secondary treatments within the Huntington treatment unit may include prescribed fire, seeding and fencing. A detailed description of each treatment method can be found in Appendix A.

Treatment objectives specific to the Huntington Treatment Unit:

- Reduce shrub cover in areas of late seral and decadent sagebrush.
- Bring treated vegetation communities to 15%A, 60%B, 15%C, and 10%>C (+/-5%) as described by the BpS models.
- Bring treated vegetation communities to 15%A, 60%B, 15%C, and 10%>C (+/-5%) as described by the BpS models.
- Improve sage grouse habitat by reducing sagebrush cover to 15-25% and increasing the herbaceous foliar cover to a minimum of 10%.
- Reduce the amount of pinyon pine and juniper establishment within sagebrush communities.
- Promote browse (bitterbrush, mahogany, etc.) within big game habitat.
- Suppress and stabilize cheatgrass and promote desired vegetative species.
- Meet Class II objectives for visual resource management.

HUNTINGTON TREATMENT UNIT			
Target Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed

Sagebrush (Wyoming Sagebrush)	32,445	9,000	10,800
TOTALS	32,445	9,000	10,800
Incidental Treatment Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Sagebrush (Black Sagebrush)	607	0	300
Sagebrush (Mountain Sagebrush)	70	0	35
Pinyon-Juniper Woodland	173	0	85
Avoidance Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Rocky Mountain Aspen Forest and Woodland	8	0	0
Salt Desert Scrub	1,388	0	0
Riparian Wetlands	215	0	0

2.3.2.3. Diamond Mountain Treatment Unit

The Diamond Mountain treatment unit consists of a total of 24,845 acres and 30% of that area (~ 7,450 acres) would be targeted for treatment. Primary and Secondary treatments proposed are the same as for the Huntington treatment unit. Treatment objectives specific to the Diamond Mountain treatment unit are the same as Huntington treatment unit.

DIAMOND TREATMENT UNIT			
Target Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Sagebrush (Wyoming Sagebrush)	10,894	5,447	7,080
Sagebrush (Mountain Sagebrush)	1,363	682	886
TOTALS	7,080	7,080	
Incidental Treatment Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Sagebrush (Black Sagebrush)	8,109	0	4.050
Pinyon-Juniper Woodland	337	0	169
Avoidance Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Rocky Mountain Aspen Forest and Woodland	337	0	0
Mountain Mahogany	67	0	0
Salt Desert Scrub	393	0	0
Riparian Wetlands	189	0	0

2.3.2.4. Buck Mountain Treatment Unit

The Buck Mountain treatment unit consists of a total of 29,111 acres and 20% of that area (~ 5,800 acres) would be targeted for treatment. Primary treatment types would include:

- Mechanical pinyon pine and juniper treatments
- Mechanical sagebrush treatments
- Chemical treatments: Tebuthiuron for the suppression of sagebrush, pinyon pine and juniper.

- Seeding

Secondary treatments proposed are the same as for the Huntington treatment unit. Treatment objectives specific to the Buck Mountain treatment unit are the same as Huntington treatment unit.

BUCK MOUNTAIN TREATMENT UNIT			
Target Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Sagebrush (Wyoming Sagebrush)	6,706	1,675	3,350
Sagebrush (Mountain Sagebrush)	1,776	1,330	1,600
Sagebrush (Black Sagebrush)	12,077	1,208	6,040
TOTALS	20,559	4,213	
Incidental Treatment Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Pinyon-Juniper Woodland	4,380	0	2,190
Avoidance Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Rocky Mountain Aspen Forest and Woodland	337	0	0
Mountain Mahogany	67	0	0
Salt Desert Scrub	393	0	0
Riparian Wetlands	189	0	0

2.3.2.5. Bald Mountain Treatment Unit

The Bald Mountain treatment unit consists of a total of 51,520 acres and 20% of that area (~ 10,300 acres) would be targeted for treatment. A portion of the unit occurs within the proposed Bald Mountain Mine expansion. Vegetation treatments within the mine boundary may be considered in consultation with the mine.

Primary treatment types would include:

- Mechanical pinyon pine and juniper treatments
- Mechanical sagebrush treatments
- Chemical treatments: Tebuthiuron for suppression of sagebrush, pinyon pine and juniper
- Seeding
- Prescribed Fire

Secondary treatment types are the same as the Huntington Treatment Unit. Treatment objectives specific to this unit are the same as Huntington Treatment Unit, along with the addition of the following:

- Reduce the amount of pinyon pine and juniper establishment within sagebrush communities.

BALD MOUNTAIN TREATMENT UNIT			
Target Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Sagebrush (Wyoming Sagebrush)	17,584	4,400	8,800
Sagebrush (Mountain Sagebrush)	4,557	2,700	4,100
Pinyon-Juniper Woodland	9,171	917	4,586
TOTALS	24,681	7,467	
Incidental Treatment Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Sagebrush (Black Sagebrush)	6,644	0	3,300
Mountain Mahogany	706	0	635
Avoidance Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Rocky Mountain Aspen Forest and Woodland	51	0	0
Salt Desert Scrub	962	0	0
Mixed Conifer	31	0	0
Riparian Wetlands	565	0	0

2.3.2.6. Pancake Treatment Unit

The Pancake treatment unit consists of a total of 14,292 acres and 10% of that area (~ 1,450 acres) would be targeted for treatment. Primary treatment types and secondary treatment types are the same as Buck Mountain treatment units. Treatment Objectives are similar to Buck Mountain treatment unit.

PANCAKE TREATMENT UNIT			
Target Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Sagebrush (Wyoming Sagebrush)	1,662	332	1,247
Sagebrush (Mountain Sagebrush)	101	50	90
Pinyon-Juniper Woodland	1,401	140	700
Sagebrush (Black Sagebrush)	8,892	889	4,450
TOTALS	24,681	1,245	
Avoidance Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Salt Desert Scrub	2,127	0	0
Riparian Wetlands	53	0	0

2.3.2.7. Monte Cristo Treatment Unit

The Monte Cristo treatment unit consists of a total of 40,360 acres and 10% of that area (~ 4,000 acres), would be targeted for treatment. Primary and Secondary treatment types are the same as those described in the Buck Mountain Treatment Unit. Treatment objectives are similar to Buck Mountain along with the addition of:

- Meet Class II objectives for visual resource management.

MONTE CRISTO TREATMENT UNIT			
Target Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Sagebrush (Wyoming Sagebrush)	7,236	1,800	3,600
Pinyon-Juniper Woodland	1,260	126	630
TOTALS			
Incidental Treatment Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Sagebrush (Mountain Sagebrush)	18	0	18
Sagebrush (Black Sagebrush)	36,632	0	3,663
Avoidance Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Salt Desert Scrub	3,194	0	0
Riparian Wetlands	152	0	0

2.3.2.8. Hamilton Treatment Unit

The Hamilton treatment unit consists of a total of 27,218 acres and 25% of that area (~ 6,800 acres), would be targeted for treatment. Primary and Secondary treatment types are the same as described for Bald Mountain treatment unit. Treatment objectives are similar to those described for the Monte Cristo treatment unit.

HAMILTON TREATMENT UNIT			
Target Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Sagebrush (Wyoming Sagebrush)	5,798	2,325	2,899
Sagebrush (Mountain Sagebrush)	3,049	610	1,525
Sagebrush (Black Sagebrush)	12,856	2,575	6,428
TOTALS	24,681	5,510	
Incidental Treatment Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Pinyon-Juniper Woodland	4,776	0	2,388
Avoidance Vegetation Types			
RMP Reference Name	Total Acreage	Target Acreage	Acreage Not to Exceed
Rocky Mountain Aspen Forest and Woodland	11	0	0
Salt Desert Scrub	196	0	0
Mountain Mahogany	40	0	0
Riparian Wetlands	414	0	0

2.3.2.9. Existing Crested Wheatgrass Seedings Management Strategy

Existing Seedings in the Newark/Huntington Watersheds			
Seeding Name	RIPS (Project) Number	Acres	Notes
Big Canyon Seeding (1987)	554544	475	Part of Huntington 4 Pasture
Corta Seeding (1965)	550591	1,038	

Fernado Seeding (1965)	550476	902	Fenced into two pastures; Six Mile Seeding
Giswold Seedings (1964)	550323	5403	Fenced into 4 pastures
Halstead Seeding (1965)	550585	989	Monte Cristo Seeding
Julian Seeding (1965)	550477	2,463	
Newark Seeding (1962)	550082	3,263*	
Pinto Creek Seeding (1966)	550868	1,283	Fenced into three pastures
Strawberry Seedings (1959)	550869	5,264	Fenced into 4 pastures
Warm Springs Seeding (1993)	554663	787	Part of Huntington 4 Pasture
West Bald Seeding (1960)	550873	3,483*	
White Pine Seeding (1962)	550522	1,093	
TOTAL ACRES:		26,443	
*This area was not entirely seeded; portions of native vegetation are included in acreage.			

These seedings would be managed to attain and maintain them in accordance with the vegetative targets found in VEG-25 of the Ely RMP. The management strategy would include staggering of treatments so that no two pastures are treated in the same year. If treatments are to be implemented within sage grouse nesting habitat, local biologists and range ecologists would be consulted with to develop height and cover requirements that are reasonable and ecologically defensible. (Connelly et al. 2000)

The same design features for vegetative treatments also apply to the Existing Crested Wheatgrass Seedings Management Strategy.

Primary treatment types would include:

- Mechanical sagebrush treatments
- Mechanical and handcutting of pinion and juniper treatments
- Chemical treatments: Tebuthiuron for suppression of sagebrush, pinyon pine and juniper
- Seeding

2.3.2.10. Monitoring

Monitoring would be conducted before and after implementation of the proposed vegetation treatments to establish baseline vegetation characteristics and determine post treatment success towards meeting treatment objectives. All monitoring techniques would follow BLM approved methods as established in Technical Reference 4400-4 (1996) and the Monitoring Manual for Grassland, Shrubland, and Savanna Ecosystems (2009) or other similar approved manuals or references.

Monitoring locations would be randomly chosen within the project area and monitoring would be conducted at least one growing season prior to the implementation of the treatment. Additional monitoring points may be established post-treatment if it is determined that they are needed. Vegetation monitoring methods may include, but are not limited to, line-point intercept for cover,

two meter belt transects for density, grazing exclosures and photographs. The same monitoring locations and methods used to establish baseline data would be used to determine if post treatment vegetation objectives are being met. Additional monitoring locations and methodologies may be employed if needed to address resource concerns.

Maintenance of treatments may be required in the future to maintain a desired seral state. Maintenance of previously treated areas may be implemented if the treatment unit and/or the watershed is departing, as indicated through monitoring, from the respective objectives listed as a result of pinyon and juniper establishment and if hand thinning or mechanical removal of pinyon and juniper would reduce departure from the objectives listed for the treatment unit and/or the watershed. Any maintenance treatments would be held to the same restrictions and design features as the primary and secondary treatments.

2.3.3. Range Improvements

2.3.3.1. Strawberry Fire Fence Extension

Description: Construct approximately 0.1 mile of new fence to extend the Strawberry Fire Fence (554932) to the south. This fence creates a pasture boundary and currently cattle drift around the southern end of the fence. This extension would be constructed to BLM fence standards for a barbed wire fence.

Objective: To restrict cattle movement between pastures and facilitate the livestock grazing system on the Strawberry Allotment.

2.3.3.2. Strawberry Division Fence

Description: Construct approximately 1.75 miles of pasture boundary fence between the North Bench and Valley Bottom Pastures of the Strawberry Allotment. This is currently an unfenced boundary along which cattle drift is common. This fence would start at the Goicoechea Hooper Drift Fence (550366) and continue south tying into the steep slopes of Rattlesnake Mountain. This fence would be constructed to BLM fence standards for a barbed wire fence.

Objective: To restrict cattle movement between pastures and facilitate the livestock grazing system on the Strawberry Allotment. This fence would also minimize cattle presence on this portion of State Highway 892.

2.3.3.3. Monte Cristo Well and Pipeline

Description: Construct a pipeline from the Monte Cristo Well (551011) that extends south into the Duckwater Allotment, Green Springs Pasture with at least two stock watering troughs. Additional maintenance and/or reconstruction may also be needed on the existing well and pipeline.

Objective: To provide a reliable water source for livestock, as well as a seasonal water source for wildlife and wild horses in southern Newark Valley and northern Railroad Valley.

Monitoring of range improvements would be ongoing and include consideration of if improvements are achieving objectives.

2.4. Description of Alternatives Analyzed in Detail:

2.4.1. No Action Alternative

The No Action Alternative is the current management situation. The Huntington and Newark Watersheds Implementation Plan would not be implemented within the proposed project areas as a result of this EA. However, treatments, riparian projects, and range improvements would still be considered and prioritized on a case-by-case basis by reviewing existing conditions and available funding resources for the planning and implementation of each individual project. Additional NEPA review would be required for each proposed treatment.

2.5. Alternatives Considered but not Analyzed in Detail

This section of the EA describes the alternatives considered but eliminated from detailed analysis by the BLM and the rationale for their elimination. The alternatives were considered relative to their means of addressing the identified purpose and need, their technological and economic feasibility, as well as their potential to address environmental issues and reduce potential impacts.

2.5.1. No Chemical Alternative

An alternative of no chemical treatments was considered. The Proposed Action would be implemented as designed except the chemical treatments identified would not occur. This alternative was eliminated from further analysis for the following reasons: it would not meet the purpose to have a landscape scale improvement to upland vegetation since chemical treatments provide a feasible treatment to implement large scale treatments; and would not meet the need for the action to manage watersheds so that they maintain ecological processes by treating cheatgrass and other invasive or noxious weeds that could inhibit these processes.

2.5.2. Native Seed Only Alternative

An alternative of Native Seed Only was considered where all actions would be identical to those under the Proposed Action, except the composition of seed mixes applied after treatments. Under this alternative, only native seed would be used. This alternative was eliminated from further analysis as the preference is already for native seed but allowing non-native where their use would be more efficient at achieving the listed objectives. Several non-native desirable species have been found to grow successfully in the watershed and compete with undesirable invasive annuals. The use of native seed only could potentially limit the achievement of the objectives in circumstances where there is a threat of invasive annuals and recurring wildland fires, and would not meet the need for the action to manage watersheds so that they display physical and biological conditions or function required for necessary ecological components to maintain ecological processes.

2.5.3. Natural Fire Only Alternative

An alternative of allowing only natural fire to affect the treatments was considered but eliminated from further analysis because it is ineffective and speculative. Natural fires are those fires caused by lighting and allowed to naturally spread. Natural fire has been removed from the ecosystem for the past 100 years, and much of the watersheds are in FRCC 2 with certain vegetation types being

in FRCC 3. These conditions result in an increased risk of losing key ecosystem components due to excess hazardous fuels. With these conditions, a fire would be difficult to control in some areas and would not achieve the desired results since fire severity would be increased. Additionally, there is a need to affect treatments in a more targeted manner across the watersheds. Due to these factors natural fire would not achieve the purpose and need to manage watersheds so that they display physical and biological conditions or functions required for necessary ecological components to maintain ecological processes and sustain appropriate uses.

2.5.4. Passive Restoration Alternative

An alternative of only passive restoration by removing livestock grazing within the project area and avoiding any active treatments to the landscape was considered but eliminated from further analysis because it is ineffective and does not meet the purpose to have a landscape scale improvement to upland vegetation. Since it doesn't address how removal of livestock would reduce pinion and juniper where appropriate or reduce sage brush where appropriate. It also does not meet the need for the action is to manage watersheds so that they maintain ecological processes and sustain appropriate uses. Removing livestock would not improve the watershed to maintain ecological processes that have been impacted by fire suppression and historic grazing by livestock and horses for the past 100 years. It would not sustain appropriate uses, of which managed livestock grazing is one of these uses.

2.5.5. Hand Cutting Only Alternative

An alternative of only doing selective hand cutting of primarily young pinyon pine and juniper trees in areas where they are considered to be encroaching on predominantly sagebrush communities was considered but eliminated from further analysis because it would not meet the purpose and need to have a landscape scale improvement on upland vegetation and would not meet the need to restore ecological processes within the two watersheds. By removing only a select number of the trees from sagebrush habitat and allowing many of the older trees to remain, the desired seral class stages for sagebrush communities would not be achieved. Additionally, the sole use of hand cutting does not provide any support for the reestablishment of herbaceous understory.

This page intentionally
left blank

Chapter 3. Affected Environment and Environmental Effects

This page intentionally
left blank

3.1. Project Area Description

The project area is defined by the Huntington Watershed and the Newark Watershed boundaries. This area is typical of the basin and range topography within the Great Basin and the Central Great Basin Ecoregional assessment area. The climate in these watersheds is closely tied to the geologic structure and resultant topography. These watersheds comprise a cold high desert semiarid climate. Elevation ranges from approximately 5,500 feet at the Newark Lake bed to over 10,000 feet on the Diamond, White Pine and Ruby Mountain Ranges. The precipitation gradient is influenced by this elevation difference. The total precipitation over the lowlands is 10 to 15 inches per year, and probably 25 or 30 inches at higher altitudes. The summer temperatures sometimes reach 100 degrees at lower levels but decrease at higher altitudes. During winter the temperature can drop to 20 or 25 degrees below zero.

3.2. Potentially Affected Resources

Potential impacts to the following resources/concerns were evaluated in accordance with criteria listed in the H-1790-1 NEPA Handbook (2008) to determine if detailed analysis was required. Consideration of some of these items is to ensure compliance with laws, statutes, or Executive Orders that impose certain requirements upon all Federal actions. Other items are relevant to the management of public lands in general, and to the Ely District BLM in particular. The items listed in the Table 3.1 Resources that have been reviewed and dismissed from detailed analysis have been reviewed and determined to be unaffected by the Proposed Action and alternatives.

Table 3.1. Resources that have been reviewed and dismissed from detailed analysis

Resource/Concern	Rationale for dismissal from detailed analysis
Prime and Unique Farmlands	No Unique Farmlands exist in the State of Nevada. There are 25,122 acres of potential Prime Farmlands in Newark and 4,597 acres in Huntington. The soils would be classified as prime if irrigated and reclaimed of excess salts and sodium. Prime Farmlands would not be affected by the proposal because the characteristics which make a soil potential Prime Farmland would not be altered.
Water Quality, Drinking/Ground	Project design features, buffer zones, topography, vegetation and other natural ecosystem components act to preclude sediment from hillsides from entering waterways. The natural buffering capability of the hillsides and vegetation surrounding the intermittent and perennial streams with the added design feature buffers placed upon these same systems combine to maintain water quality.
Floodplains	Neither watershed has any Federal Emergency Management Agency (FEMA) flood plain maps. The dry lake bed in Newark does have a flood frequency classification as rare - meaning that soil type holds water and the location concentrates water from the hillsides (bathtub) during abnormal precipitation events. The proposed action would not impact this flood frequency.
Threatened and Endangered Species	No known populations of threatened or endangered species occur within the Newark and Huntington watersheds.
Cultural Resources	Cultural resources would be avoided or mitigated prior to ground disturbing activities.
Native American Religious and other Concerns	Identified Native American traditional religious sites or cultural sites of importance would be avoided or mitigated prior to implementation of any treatments.
Environmental Justice	There are no known disadvantaged populations that would be adversely impacted by the project.
Human Health and Safety	All applicable safety requirements and regulations would be incorporated into the design of each treatment prior to implementation. Appropriate design features have been incorporated to minimize exposure and risk to human health and safety.

Wastes, Hazardous or Solid	Known hazardous or solid wastes that exist within the Newark and Huntington Watersheds are currently being managed under Hazmat Plans and would not be impacted by the proposed action. Any spills or discoveries of hazardous or solid wastes would be reported immediately to the approving official.
Mineral Resources	The proposed action will not disturb or remove mineral resources or the potential to access them.
Wild and Scenic Rivers	There are no wild and scenic rivers in the project area.
Special Designations other than Wilderness, including Areas of Critical Environmental Concern (ACEC)	There are no ACECs or other areas with special designations located within the project area. The Pony Express Trail does occur within the project area. Design features would minimize impacts to this historic trail.
Wilderness/Wilderness Study Areas	There are no wilderness or wilderness study areas located within the project area.

3.3. Resources Analyzed in Detailed

3.3.1. Air Quality

The State of Nevada, Division of Environmental Protection (NDEP) annually monitors principal pollutants for compliance with Environmental Protection Agency (EPA) established standards. In 1998 an air quality monitoring site was established in McGill, White Pine County, Nevada to monitor PM10. PM10 is an inhalable coarse particulate less than ten microns in size which is mainly an emission from man-made sources like salt and sand application on roads in winter, work on unpaved roads, construction sites, or rock processing. The monitoring site at McGill was discontinued because PM10 measurements remained well below national air quality standards. Air Quality designations for White Pine and Lincoln Counties, Nevada for the criteria pollutants monitored by the State of Nevada are either not classified, unclassifiable/attainment, or better than National Standards. No portions of the proposed project area are in areas of nonattainment.

3.3.1.1. Impacts from Proposed Action

The prescribed fire component would introduce fine and coarse particulates into the atmosphere within Newark and Huntington watersheds and White Pine, Elko, and Eureka Counties, Nevada. The BLM would follow the State of Nevada, Division of Environmental Protection, Bureau of Air Quality Planning, Smoke Management Plan requirements for air quality as indicated in the design features for Air Quality Restrictions. Any particulates liberated to the air during prescribed fire operations would not affect the overall air quality of these counties. The use of the herbicide Tebuthiuron would not impact air quality as the pellet-form of Tebuthiuron would be used. In pellet form there is immeasurable loss of chemical to the atmosphere.

3.3.1.2. Impacts from No Action Alternative

There would be no impacts on air quality from the No Action Alternative.

3.3.2. Soil Resources

The soils in the Huntington and Newark Watersheds can be characterized in four general landscape locations: steep mountain; piedmont and hillsides; alluvial fans; and valley floor.

The soils in the steep mountains surrounding the valleys are typically very coarse loam with slopes ranging from 15% to well over 50%. Piedmonts and Hillsides are those locations immediately below the steep mountainous zones and typically possess slopes in ranges between 2% to 15%. The alluvial fans are those areas that typically spread out from the mouth of a canyon and have soil textures ranging from very gravelly loam to fine sandy loam with coarser textures being nearer to the upper extent of the fans and the finer near to the valley floor. Alluvial fans may show many features classified as Beach Plains where slopes may range from 0% to 4% and textures may be coarse loams. Valley floor soils in the Newark Watershed are classified as Basin Floor or Lake Plain soils. Both valley bottom soils are fine-textured and possess montmorillonitic and calcareous clays which resulted from the decomposition of calcareous parent materials. The soils are mixed alluvium and lacustrine deposits and range in textures from silt clays to silt loams. Such fine materials are very susceptible to wind action and can be mobilized with the slightest breeze. The valley floor in the Huntington Watershed is a riverine floodplain and as such possesses soils which exhibit characteristics of both fine and coarse textures. Huntington Creek cuts through many depositional layers ranging from silty clay loam to gravel. The surrounding floodplain soils are generally fine-silty and sandy loam.

3.3.2.1. Impacts from the Proposed Action

Chaining and Mastication: Chaining and mastication would disturb soils by directly compacting and displacing surface and subsurface horizons, which could lead to an increased risk of wind and water erosion. Chaining operations would have the greatest risk of compacting soils within the area directly under heavy equipment. The use of heavy equipment potentially involves multiple passes across treatment areas, up-rooting vegetation, exposing soil to depths potentially below the rooting zone, and displacing soil by altering its position within the soil horizon or upon the landscape. The degree to which soils are compacted is a function of the depth of organic material and vegetation at the surface upon which the vehicles travel and the pressure the equipment exerts on the soil surface. The degree to which soil is exposed or uncovered is a function of the type of chain employed and whether one pass or two passes are employed. Displaced and exposed soil could be susceptible to wind or water erosion until exposed soil is re-vegetated. Soils compacted during chaining could show long-term effects, such as a change in soil structure and slower water infiltration rates. The amount of soil compaction in any treatment unit is expected to be small given the occurrence only appears where the equipment was used, which accounts for an overall small percentage of a treatment unit.

Mastication treatments would have compaction and displacement effects to an overall lesser degree than the chaining treatments due to use of lighter equipment and a greater retention of standing vegetation and residual organic material. Moving and stacking of biomass, whether for burning or fuelwood disposal, could lead to limited and localized areas of soil displacement, especially where the equipment may make frequent turns and where soils may become dished-out. The compaction effects would be lessened further as equipment use occurs over tree and shrub material and may not occur at all if material is thick enough to support the equipment and disperse the ground pressure effects. Soil disturbance effects are expected to be short-term until vegetation re-establishes on bare soils.

Fire, whether unit burning post-chaining, pile burning post-mastication, or hand cutting could leave areas of soil hydrophobicity if fires burn too severely. Large slash piles may exhibit small areas of hydrophobic soil underneath and adjacent to the piles due to high temperatures generated while burning. Sites exhibiting hydrophobic characteristics are expected to be rare

and to account for very minimal land area in treatment units which are burned as a secondary treatment. General conditions needed to form hydrophobic soils are a thick litter layer before the fire, sandy texture soils, and a severe slow-moving fire usually with a crown fire. Conditions in the proposed treatment units are coarse loam soils, no crown fire potential, and lack a thick organic layer component in the soil horizon.

Mechanical Methods: The three types of equipment used for mechanical sagebrush restoration require being pulled or dragged by either a tractor or bulldozer. Soil compaction is a risk, especially if the mechanical method is a secondary treatment following a chaining primary treatment. The Dixie harrow and mower operations would have a lower risk of soil compaction whether directly or compounded following a chaining operation. The probable use of a rubber tired tractor with the harrow or mower reduces the likelihood of soil effects. Roller chopper use would be expected to have the greater risk of soil compaction with the use of a bulldozer to pull the equipment across treatment units.

Dixie harrow would rake the surface vegetation and potentially the soil surface to the set depth of the spiked teeth. Further soil disturbance could occur if dragged material gouged or scoured bare or exposed soil. Mower use is not expected to affect soil resources. Roller chopper use could directly scalp the soil surface if the chopper was operated over bare or exposed soils. Mechanical methods could have long-term disturbance effects to soil resources if operated upon bare or exposed soil. Displacement of surface organic horizon or intermixing of inorganic subsurface horizons with organic surface horizons may affect soil productivity in localized areas.

Chemical Treatment: Use of chemicals to affect vegetation would not directly affect soils. Loss of ground cover vegetation may affect soil retention or soil stability. It is expected that the efficacy of chemical treatments across landscape settings would not lead to increased potential for soil erosion or soil loss. Chemical treatment of target species would leave sufficient ground cover from non-target vegetation to retain soil resources.

Prescribed Fire: Burning treatment units to reduce fuel loading or biomass and to attain other resource targets would follow guidelines in an established project-specific burn plan that would be developed at the time of implementation. The use of control lines and fire lines would necessitate the exposure of bare mineral soil. Lines could be areas of increased risk to soil erosion if rehabilitation does not occur prior to the onset of the first precipitation event. Loss of target vegetation from prescribed burning is not expected to result in a total elimination of organic texture from hillsides or the ability of the natural system to buffer sediment if erosion does occur. Understory vegetation and heterogeneous topography are expected to naturally buffer and protect hillsides from soil and water movement prior to the establishment of new or release of existing plants.

Risk of creating hydrophobic soil conditions is identical to that described for use of fire as a secondary treatment in Chaining and Mastication.

Aspen Restoration: Manual conifer tree cutting and removal would not affect soil resources directly. Decking trees on riparian soils and later fuelwood cutting if undertaken during wet soil conditions could be a risk factor. Prescribed fire use in aspen stands would have effects similar, but typically on a smaller scale, to those described in Prescribed Fire.

Seeding: Use of seeding as a treatment would tend to stabilize and protect soils, especially where sown on bare or exposed soil. Establishing target species ground cover is expected to hold soil

on slopes and buffer against erosion as well as working as an important part of soil health by organic matter integration.

Fencing: Use of fence would not directly affect soil resources. Fencing areas to exclude entry into sensitive areas could protect soils from trampling until target vegetation is established and capable of handling intended use.

Biological Soil Crust (BSC) occurs within both watersheds but has not been inventoried. Ground disturbing activities are planned for approximately 45,450 acres of previously undisturbed uplands, or twenty percent of the total treatment units and other projects, and approximately seven percent of the project area (both watersheds), over the life of the plan and have the potential to disrupt BSC.

3.3.2.2. Impacts from No Action Alternative

There would be no short-term effects to soil resources. There could be a long-term effect to soil productivity from the slow change from shrub-grassland dominated systems to shrub-tree dominated systems. In other words, there could be a change in the timing and processes involved in the way nutrients and organic matter enter the soils; finer vegetation potentially changing to coarser vegetation or shorter nutrient cycling times versus potentially longer times.

3.3.3. Wetlands and Riparian Zones

Riparian systems in the Huntington and Newark Watersheds appear to occur along natural flow paths or draws emanating from canyons which may or may not have surface water. The draws are preferential flow paths for ground and surface water and as such are the inception points for alluvial fan features further into the valleys. The flow paths which form the surface flow spring brooks typically provide situations for the establishment of colonizing riparian vegetation sedges, rushes, and Quaking aspen (*Populous tremuloides*). Aspen can be found at the inception points of spring brooks with sedges and rushes continuing down the extent of the brooks until the water disappears near the toe of the alluvial fans.

Small point springs that may or may not show signs of surface water found throughout the valleys usually exhibit vegetative indicators of groundwater sources near the surface. These indicators may be riparian species such as sedges or rushes but often are mesic upland species like wild rose (*Rosa woodsii*). Rose is not a true riparian species but is ubiquitous when soil moisture is perennially elevated.

Riparian resources can be found on the valley floor where several spring sources exit from beneath the toe of alluvial fans. These springs are perennial sources of water which support a combination wetland/riparian complex of riparian and mesic upland vegetation species. It is believed that these surface sources were created for the purpose of livestock watering but now source the dual purpose of wildlife habitat.

3.3.3.1. Impacts from Proposed Action

Project design and targets for individual treatment units intend to avoid riparian systems. It is believed that primary and adaptive management actions for sagebrush restoration and woodland treatments would not affect riparian areas. Avoidance, buffering, and other design feature implementation would minimize effects to riparian systems.

Tebuthiuron would not impact riparian areas, as a buffer zone of non-treatment would be included near riparian areas. Adherence to the Standard Operating Procedures and Project Design Features for Herbicide Applications as identified in the Vegetation Treatments Using Herbicides on Bureau of Land Management Lands in 17 Western States Final Programmatic Environmental Impact Statement and Record of Decision would ensure no impacts to riparian and spring sources.

Aspen treatments would be assessed as individual projects prior to implementation and mitigation measures and design features developed and adopted to protect riparian resources as conditions warrant on a case by case basis. It is expected that effects to riparian resources other than aspen vegetation would be minimized.

Riparian improvement and enhancement projects would have short term impacts to riparian areas including temporary crushing and removal of riparian vegetation by equipment and fencing, and diversion of stream flow during construction. These impacts are not long term and riparian vegetation should recover and stream flows would be returned to natural steam beds.

3.3.3.2. Impacts from No Action Alternative

Riparian areas identified for improvements would not be improved and would continue to channelize. Impacts from grazing by livestock and wild horses would continue, as well as roads crossing stream channels. There would be no improvements within aspen areas with associated riparian areas; these areas would continue to channelize and drop the water table in riparian areas where roads occur and this process has already began.

3.3.4. Vegetation

3.3.4.1. Rangeland Vegetation

The low elevation vegetation types include winterfat (*Ceratoides lanata*), greasewood (*Sacrobatus* spp.), shadscale (*Atriplex cenfertifolia*), basin big sagebrush (*Artemisia tridentata ssp. tridentata*), and Wyoming big sagebrush (*Artemisia tridentata ssp. wyomingensis)*. The mid-level montane (including the benches) is composed of black sagebrush (*Artemisia nova)*, Wyoming big sagebrush, snowberry (*Symphoricarpos albus*), Utah serviceberry (*Amelanchier utahensis*), mountain big sagebrush (*Artemisia tridentata ssp. vaseyana)*, and antelope bitterbrush (*Purshia tridentata)* plant communities. The higher montane regions of the Diamond Mountains to the west are characterized by mountain big sagebrush, antelope bitterbrush, Utah serviceberry, snowberry, black sagebrush, Wyoming big sagebrush, and basin big sagebrush. In isolated pockets, small stands of willow (*Salix* sp.), wild rose (*Rosa woodsii*) and chokecherry (*Prunus virginiana)* are found generally near water sources.

The extensive salt desert shrub and black sagebrush plant communities found in the bottoms of Newark Valley provide adequate winter forage for large herbivores, while the Wyoming big sagebrush plant communities found in Huntington Valley and along the benches of the Diamond Mountains, Buck Mountain, Bald Mountain, and Antelope Mountain provide summer forage for larger herbivores as well as habitat for various wildlife. These two watersheds also have several crested wheatgrass (*Agropyron cristatum)* seedings that provide an alternative forage source to reduce livestock grazing pressure on native rangelands. Bourne Canyon (pinyon) and Orchard Canyon (bitterbrush) chaining treatments were done in 1995 and 1998 respectively. Several fires

have occurred throughout the two watersheds. Fire Regime Condition Class (FRCC) is described in the current condition section of the Newark & Huntington Watershed Analsysis.

3.3.4.1.1. Impacts from Proposed Action

The vegetation treatments in the proposed action address the invasion and/or expansion of pinyon pine and juniper species and diminishing herbaceous cover in sagebrush vegetation found in the watersheds. These treatments will remove pinyon pine and juniper vegetation from sagebrush plant communities and/or reduce shrub cover to allow for increased herbaceous growth. Over the long term, this would move the watersheds toward the desired range of conditions for rangeland vegetation, as stated in the Ely RMP, FRCC objective for the watersheds, and Standards for Rangeland Health. There would be some short term loss of rangeland vegetation from project implementation. Long term management of crested wheatgrass seedings will also allow for these areas to persist as both a wildlife habitat source and important livestock forage.

Range Improvement projects included in the proposed action would temporarily displace rangeland vegetation during construction, however the project areas will revegetate naturally resulting in minimal overall effect to the vegetation of the areas.

Improved livestock distribution, as a result of new stockwater development, will affect vegetation by adding new areas of grazing pressure while reducing grazing pressure in areas currently experiencing higher grazing intensity. This will result in localized areas of increased vegetative disturbance. These effects will be localized and minimal in the overall scope of this plan.

3.3.4.1.2. Impacts from No Action Alternative

Under the No Action Alternative, the current rangeland vegetative conditions would persist and likely continue on a long-term trend of increased pinyon pine and juniper and decreased herbaceous understory.

3.3.4.2. Forest and Woodland Vegetation

Single leaf pinyon pine (*Pinus monophylla*) and Utah juniper (*Juniperus osteosperma*) woodlands occupy many of the benches and mountain ranges within the Newark and Huntington Watersheds. Pinyon Juniper woodlands generally are found at elevations between 6,000 feet mean sea level (MSL) and 9,000 feet MSL. At higher elevations limber pine (*Pinus flexilis*) and occasionally bristlecone pine (*Pinus longaeva*) are found in the Diamond Mountains, the White Pine Range and in the Ruby Mountains. Quaking aspen (*Populous tremuloides*) is found at various elevations within the watersheds generally near springs and where subsurface water is easily accessible to roots primarily in the Diamond Mountains. Other smaller aspen communities exist near Bald Mountain, the Ruby Mountains and in the White Pine Range. A unique population of Engelmann Spruce (*Picea engelmannii*) is found at the higher elevations of Sherman Mountain at the South end of the Ruby Mountains near the White Pine County/Elko County Line. Curlleaf mountain-mahogany (*Cercocarpus ledifolius*) can be found at higher elevations throughout the Newark and Huntington watersheds.

3.3.4.2.1. Impacts from Proposed Action

The following treatment methods have the potential to impact forests and/or woodlands. Other treatment methods would have no impact because they occur outside forest or woodland areas.

Chaining: Pinyon pine and juniper woodlands are incidental vegetation types for chaining. Chaining removes all pinyon pine and juniper trees over approximately four feet in height within the chaining treatment area, except for islands and stringers left by design. This treatment method is not mimicking a natural disturbance as prescribed fire or individual tree removal methods do, but does effectively revert succession class C, D, E and UN (for uncharacteristically high canopy cover) woodlands back to succession class A and B woodlands. Currently in the watershed, succession classes A and B are underrepresented by 5% each. Thus some chaining in pinyon pine and juniper woodlands would have an impact consistent with the purpose and need of the proposal. However, if more than 15% of the pinyon pine and juniper woodlands are treated through chaining, herbicide or stand-replacing prescribed or wild fire, then the ecological departure of the pinyon pine and juniper woodland system would increase contrary to the purpose and need for treatment. Regeneration following chaining is typically quite successful, however young pinyon pine and juniper trees would be at increased risk of being trampled, browsed, scrapped or otherwise disturbed due to the increased amount of livestock grazing that would occur after understory vegetative objectives are met.

Individual tree removal: Individual tree removal includes hand cutting, mastication and mechanical tree removal treatment techniques. Target and incidental vegetation for these treatment methods include pinyon pine and juniper woodlands, white fir forests, and aspen forests. The impact to these vegetation types from the proposed action is to reduce tree density in targeted stands. This reduction of tree density would open up stands (converting a succession class UN (for uncharacteristically high canopy cover) stand in many cases to a C, D or E stand depending on the average size of the remaining trees). This impact would be consistent with the goals of the project in all forest and woodland vegetation types because all vegetation types are either becoming encroached by an unwanted species (white fir in aspen) or are over-representing in the later successional classes, or both.

Chemical Treatments: Herbicide (Tebuthiuron) has varying impacts on woodland vegetation. If applied at a high enough rate (more than 1.5 oz. of active ingredient per acre), nearly all trees would senesce. At lesser rates, pinyon pine is more vulnerable than juniper and juniper will often survive. If the rate is high enough to kill all trees in the application area, the effect would be to return the area to a succession class A if in large enough blocks. If the application is mosaic in nature, the result could be to open up the stand, creating class C or D structures. Both of these results are consistent with the purpose and need, so long as more acreage isn't converted to one succession class than is stated in the reference condition percentage, which would increase rather than decrease ecological departure.

Prescribed Fire and Fire for Resource Benefit: Prescribed fire reduces the density of trees generally in a mosaic pattern and increases regeneration in some ecosystems (especially aspen and mountain mahogany). The reduction of tree density and increased regeneration would return the stands to a condition closer to the reference condition and therefore reduce ecological departure. Prescribed fire also burns very heterogeneously across the burn unit, allowing for a more natural distribution of age classes and increased patchiness in the watershed. This impact is consistent with the purpose and need for the proposal.

Fencing: Fencing would reduce the amount of herbivory by livestock, wild horses, and wildlife and would allow for increased rates of regeneration in aspen communities. This increased regeneration would help ensure the aspen stands persist into the future and reduce the ecological departure of the system.

Range Improvements: The range improvements included in the Proposed Action are not anticipated to impact forest and woodland vegetation due to the distance between any proposed projects and identified woodland areas.

3.3.4.2.2. Impacts from No Action Alternative

The No Action Alternative would not impact forests and woodlands in a manner consistent with the purpose and need. Rather, stand densities would continue to increase and stands would continue to become more departed from the reference condition (higher FRCC). Forests and woodlands would be at increased risk to high severity, high intensity wildfire that is uncharacteristic and would revert large areas back to successional class A, increasing the ecological departure in most vegetation types even more. Furthermore, since aspen is fire dependent and susceptible to herbivory, without disturbance (either natural or through treatment such as one described in the Proposed Action) aspen stands within the watershed are at high risk to being lost from the landscape forever.

3.3.4.3. Non-native Invasive and Noxious Species

Noxious weeds are found along roadways and riparian areas within the watersheds. Hoary cress *(Lepidium draba)*is the most common. Two noxious weeds of concern within the watersheds are leafy spurge in the northwest portion of the Huntington watershed and black henbane *(Hyoscyamus niger)*scattered throughout the Newark watershed. Black henbane has also been observed in Huntington watershed. Cheatgrass *(Bromus tectorum)*is scattered throughout the watershed, mostly in disturbed areas including gravel pits, roads and past fires. Halogeton *(Halogeton glomeratus)*is found along roads and in disturbances such as gravel pits. It is also prevalent in the southern portion of the Newark watershed in the salt desert shrub communities.

3.3.4.3.1. Impacts from Proposed Action

Treatments could potentially spread noxious and invasive weeds. Cheatgrass is the most likely weed species to infest treatment units. However, by using cheatgrass suppression options, desirable species should establish. The several range improvement projects proposed could disturb existing vegetation and weeds could spread into the newly disturbed areas. This increase in weeds is expected to be minimal. Reseeding these areas with desired plant species should prevent weeds from becoming a dense cover. At the time of implementation, site specific weed risk assessments would provide best management practices to prevent or reduce these impacts.

3.3.4.3.2. Impacts No Action Alternative

No new weed issues would occur, however, current weed problems would continue including higher tree and shrub densities. If disturbed by fire, these areas could result in dense cheatgrass infestations. Also, no new range improvements would impact distribution of livestock, thereby increasing impacts to desired vegetation and making it more susceptible to weed infestations.

3.3.5. Fish and Wildlife Resources

3.3.5.1. Fish and Wildlife

Wildlife

The Newark/Huntington Watershed supports a wide variety of wildlife species including: greater sage grouse, pygmy rabbit, Rocky Mountain elk, mule deer (crucial summer habitat, crucial winter habitat and migration corridors), pronghorn antelope, and mountain lion. There is potential habitat for bighorn sheep, but none are documented.

Fish

Cold Creek Reservoir, situated on both private property and public land, is a small spring fed reservoir located in the northwest part of Newark Valley watershed. The Nevada Department of Wildlife (NDOW) controls the Cold Creek Reservoir for General Sport Fisheries Management. The reservoir contains a naturally reproducing population of rainbow trout (*Onchorynchus mykiss*) that is augmented twice annually. In 2009, NDOW also augmented Cold Creek reservoir with 229 largemouth bass (*Micropterus salmoides*). Newark Valley tui chub (*Gila bicolor newarkensis*) occur in Cold Creek Reservoir in high numbers.

Warm Springs, located on private land in Newark Valley, contains tui chub, carp (*Cyprinus carpio*), largemouth bass and rainbow trout.

Newark Valley tui chub occur as a distinct subspecies of tui chub in Newark Valley. The Newark Valley tui chub is classified as a Nevada BLM sensitive species because its known distribution lies entirely within Newark Valley with no occurrences outside the drainage. Chubs can be found in spring ponds, pothole springs, spring brooks, terminous ponds, and reservoirs (Crookshanks 2005). The majority of populations of tui chub occur throughout the west side of the valley in spring systems (Crookshanks 2005).

3.3.5.1.1. Impacts from Proposed Action

Vegetation Treatments and Seeding Management Plan: Impacts to big game and other wildlife would be minimal with implementation of timing stipulations and design features. Individual animals may be disturbed and displaced from the area temporarily during implementation of vegetation treatments; however there is adjacent suitable habitat to provide wildlife needs. A mosaic pattern is expected to provide wildlife populations with greater vegetative diversity and diverse age-class distribution. Treatments would release understory forage and browse species for all wildlife, improving overall nutrition, productivity, and survivorship. Woodland sites would continue to provide thermal protection and escape cover for many species.

Riparian Improvements/Enhancements: Under the Proposed Action, wildlife may be temporarily disturbed or displaced due to construction.

Range Improvements: Under the Proposed Action, wildlife may be temporarily disturbed or displaced due to construction.

3.3.5.1.2. Impacts from No Action Alternative

Vegetation Treatments and Seeding Management Plan: Under the No Action Alternative, resource conditions are expected to stay the same with continual pinyon pine and juniper encroachment on sagebrush communities and decline in the production, vigor, and diversity of grass, forb, and shrub species. Forage values would continue to decline in terms of both nutrition and palatability, reducing wildlife populations due to reduced food quality and quantity. The increase of pinyon pine, juniper, and decadent sagebrush stands could result in large, uncontrolled wildfires that have the potential to eliminate large tracts of existing habitat for big game and other wildlife.

Range Improvements: Under the No Action Alternative, there would be no additional disturbance to wildlife because no new pipelines and troughs, reservoirs, or well developments would be constructed. However, there would be continual concentrated use at the current functioning water troughs and reservoirs, continuing and expanding the degradation in these areas with little to no native vegetation and increased weeds, altering habitat.

Riparian Improvements/Enhancements: Under the No Action Alternative, wildlife would not be temporarily disturbed or displaced due to construction.

3.3.5.2. Migratory Birds (including Bald and Golden Eagles)

Migratory Birds

Migratory birds are those listed in 50 CFR 10.13 and include many native species commonly found in the United States. Migratory birds are protected under the Migratory Bird Treaty Act (MBTA), which makes it unlawful to take, kill, or possess migratory birds.

Migratory bird nesting and foraging habitats are located throughout Newark and Huntington watersheds. Based on the Atlas of Breeding Birds of Nevada (Floyd et al. 2007), the following species (and others not listed) are common in Nevada and have a high probability of occurring within the project area. The Brewer's sparrow, sage thrasher, and sage sparrow are sagebrush obligate species that require large expanses of sagebrush habitat for ideal nesting conditions. Other species that nest in sagebrush shrubs include the loggerhead shrike, gray flycatcher, and green-tailed towhee. Common pinyon-juniper species in the project area are pinyon jay, western scrub jay, mountain chickadee, bushtit, and juniper titmouse and mixed conifer species include the white breasted nuthatch, hermit thrush, Cassin's finch, and Clark's nutcracker.

Many migratory bird species are heavily dependent on healthy riparian systems, with willows and cottonwoods being important habitat features. The project area includes several springs and perennial streams that represent important migratory and game bird habitat.

3.3.5.2.1. Impacts from Proposed Action

Vegetation Treatments and Seeding Management Plan: Under the Proposed Action, impacts to migratory birds and raptors would be minimal due to timing restrictions and design features. Treatment implementation would occur outside the breeding bird nesting season or the area would be surveyed for nesting birds prior to treatment. Due to the difficulty of identifying all nests within a project area, some nests or eggs may be destroyed during implementation; however due to adjacent and available suitable habitat within the watershed, local migratory bird populations

would not be impacted by the Proposed Action. All active raptor nests would be avoided during implementation of the Proposed Action.

Changes in habitat condition and abundance as a result of the Proposed Action may result in increases in the populations of some bird species at the expense of other bird species. Thus, there is no change that would benefit or adversely affect all bird species. Additionally, treatment design is to incorporate varying succession states of pinyon pine and juniper woodlands throughout the watershed and would benefit pinyon-juniper obligate bird species. Incorporating pinyon-pine and juniper stringers into the treatment design is expected to benefit nesting Ferruginous hawks. Additionally, improving sagebrush communities would increase the prey base (small mammals) for raptors and increase insect populations for passerines.

Range Improvements: Under the Proposed Action, impacts to migratory birds and raptors would be minimal due to timing restrictions and design features. Migratory birds and raptors may be temporarily disturbed during construction of range improvements. Where possible, pipelines would follow existing roads or trails, or crush vegetation creating a temporary loss of habitat; however this will not affect migratory bird or raptor populations. All troughs will be equipped with wildlife escape ramps and will provide drinking water for birds.

Riparian Improvements: Under the Proposed Action, migratory birds and raptors may be temporarily disturbed or displaced due to construction.

3.3.5.2.2. Impacts from No Action Alternative

Vegetation Treatments and Seeding Management Plan: Under the No Action Alternative, resource conditions are expected to stay the same with continual pinyon pine and juniper encroachment on sagebrush communities and decline in the production, vigor, and diversity of grass, forb, and shrub species thereby reducing the diversity of food and cover sources. The diversity of bird species currently found in these areas would decline, with birds that rely on pinion and juniper increasing and all other species decreasing. The increase of pinyon pine, juniper, and decadent sagebrush stands could result in large, uncontrolled wildfires that have the potential to eliminate large tracts of existing habitat for migratory birds and raptors.

Range Improvements: Under the No Action alternative, no new range improvements would be constructed and there would be no disturbance to migratory birds, raptors, and their habitat.

Riparian Improvements: Under the No Action Alternative, migratory birds and raptors would not be temporarily disturbed or displaced due to construction.

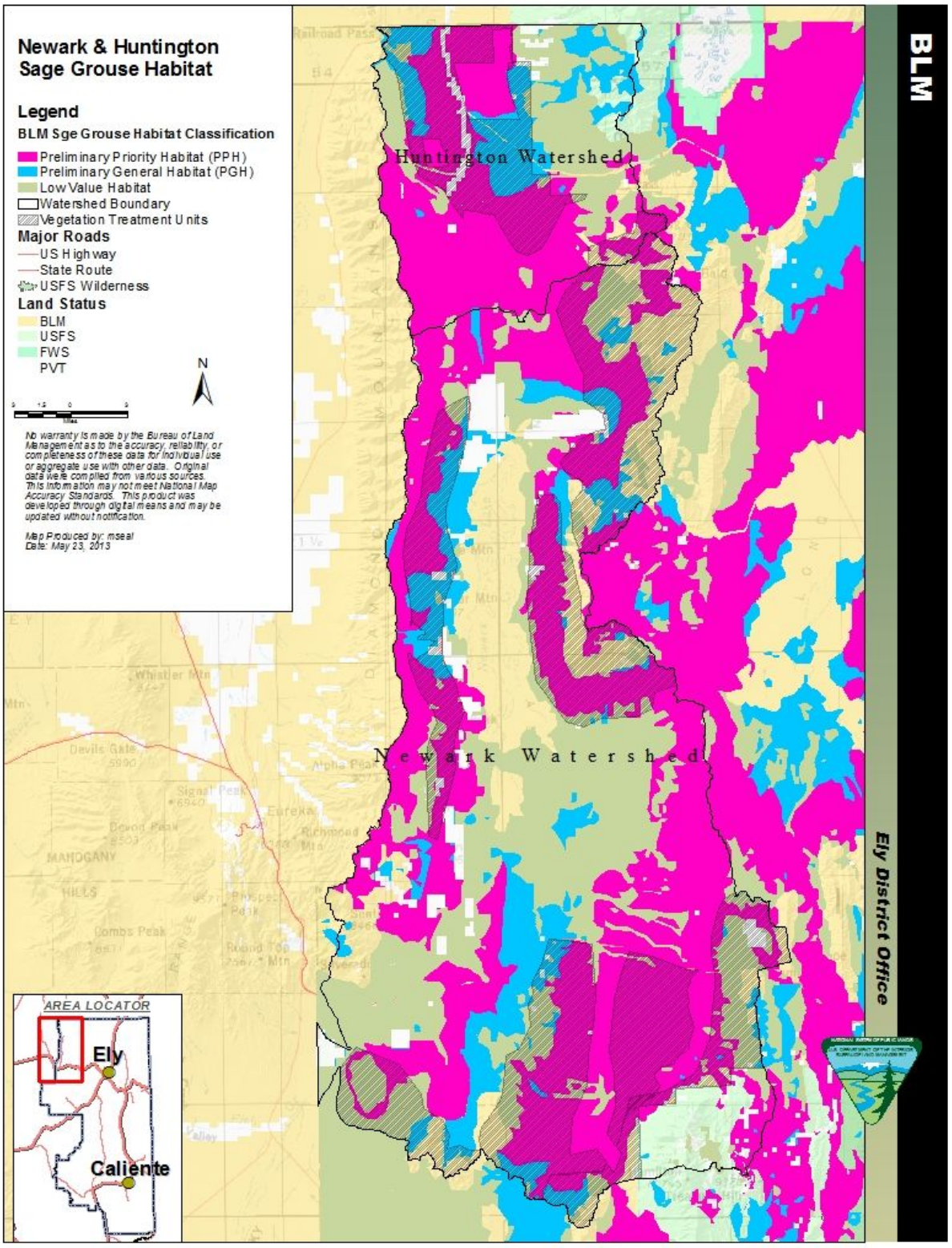
3.3.5.3. Special Status Animal Species

Greater Sage-grouse

The greater sage-grouse is a BLM Sensitive Species that has been determined to be warranted for listing under the Endangered Species Act (ESA), but which is precluded by other species of higher priority (Federal Register/Vol. 75, No. 55/Tuesday, March 23, 2010). To protect greater sage-grouse and their habitat and potentially prevent the species from becoming listed under the ESA, the BLM Washington Office issued two Instructional Memorandums: IM No. 2012-043 (*Greater Sage-Grouse Interim Management Policies and Procedures*) and IM No. 2012-044 (*BLM National Greater Sage-Grouse Land Use Planning Strategy*). Instruction Memorandum

No. 2012-043 provides direction for the management of sage grouse habitat while updating Land Use Plans. Instruction Memorandum No. 2012-044 establishes consistent protection measures for the species and its habitat to be incorporated into the NEPA analysis that will be used to amend Land Use Plans.

Priority and general sage grouse habitat has been identified by the BLM in coordination with the Nevada Department of Wildlife. Priority habitat comprises areas that have been identified as having the highest conservation value to maintaining a sustainable sage grouse population, which includes breeding, late brood-rearing, and winter concentration areas. General habitat comprises areas of occupied seasonal and year-round habitat outside the priority habitat. The policies and procedures identified in the above mentioned IMs are designed to minimize habitat loss in both priority and general habitat and will help the BLM meet objectives to maintain and restore sage grouse habitat. Priority habitat has been identified in the Huntington and Newark watersheds, as shown in the following map, and was used to guide the development of the proposed action, alternatives, and mitigation measures for this watershed restoration plan.



Map 3.1. Sage Grouse Habitat

Chapter 3 Affected Environment and Environmental Effects
Fish and Wildlife Resources

Sage grouse are sagebrush obligates that depend on large expanses of un-fragmented sagebrush habitats for successful reproduction and winter survival (Connelly et al. 2004). The characteristics of landscapes dominated by big sagebrush, including Wyoming big sagebrush, mountain big sagebrush, and basin big sagebrush, comprise the primary habitat requirements for sage grouse. Sage grouse distribution is strongly correlated with the distribution of sagebrush habitats (Schroeder et al 2004). Black sagebrush habits may not provide the vegetation characteristics to meet nesting habitat requirements as described by Connelly et al (2000), but still can provide important habitat components for sage grouse. Patches of big sagebrush mixed within black sagebrush habitats may provide nesting cover for sage grouse. Black sagebrush habitats are used primarily for summer brood-rearing habitat and may provide for wintering grouse if snow depths are light to moderate.

Preferred strutting grounds consist of shorter vegetation within or near a matrix of otherwise suitable nesting habitat, with taller, more robust sagebrush surrounding the lek for escape cover. An absence of trees or other raptor perches near the grounds is also preferred. The project area holds a mosaic of different species of sagebrush that serve as breeding, nesting, brood-rearing and wintering habitat. The sagebrush understory of productive nesting areas contains native grasses and forbs with horizontal and vertical structural diversity that provides an insect prey base, herbaceous forage for pre-laying and nesting hens, and cover for the hen while she is incubating (Schroeder et al. 2009, Connelly et al 2000, Connelly et al 2004). In arid sites as in eastern Nevada, optimal nesting habitat contains 15-25% sagebrush canopy cover with a vigorous, diverse, herbaceous understory consisting of at least 15% perennial grass and forb cover (Connelly et al 2000). Optimal brood-rearing habitat should contain 10-25% sagebrush canopy cover, with at least 15% grass and forb cover. Crested wheatgrass seedings that are being re-colonized by sagebrush are providing some of the better sage grouse nesting habitat in the watersheds.

Shrub canopy and grass cover provide concealment for sage grouse nests and young, and are critical for reproductive success. Females have been documented to travel more than 12.5 miles to their nest site after mating, but distances between a nest site and the lek on which breeding occurred is variable. While earlier studies indicated that most hens nest within 2 miles of a lek, more recent research indicates that many hens actually move much further from leks to nest based on nesting habitat quality. Research by Wakkinen et al (1992) demonstrated that nest sites are selected independent of lek location. Hens rear their broods in the vicinity of the nest site for the first two to three weeks following hatching. Forbs and insects are essential nutritional components for chicks. Therefore, early brood-rearing habitat must provide adequate cover adjacent to areas rich in forbs and insects to assure chick survival during this period. Optimal winter habit should contain 10-30% sagebrush canopy cover exposed above the snow.

Pygmy Rabbits

The pygmy rabbit is another BLM sensitive species that has recently been found not to warrant protection under the ESA (Federal Register/vol.75, No. 189/Thursday, September 30, 2010). The extent of pygmy rabbit occurrence is influenced by habitat suitability as indicated by the presence of tall, dense, big sagebrush stands in combination with deep, sandy, and loose soils for burrows.

3.3.5.4. Impacts from Proposed Action

Vegetation Treatments and Seeding Management Plan: Under the Proposed Action, impacts to Special Status Species would be minimal with implementation of Best Management Practices,

timing stipulations, and design features of the treatments. Individual animals may be disturbed and displaced from the area during implementation of treatments.

Treatments are expected to improve habitat for sage grouse, pygmy rabbits, and other special status species by removing pinyon pine and juniper trees, increasing available sagebrush habitat, and increasing grass and forb production in sagebrush communities. Over time, aspen restoration treatments would create more suitable habitat for nesting northern goshawks throughout the watersheds, increasing local populations.

Range Improvements: Under the Proposed Action, impacts to special status species would be minimal with implementation of Best Management Practices and timing stipulations. There would be minimal loss of habitat due to fence construction and it would not affect special status species' populations. New troughs will be equipped with wildlife escape ramps and provide drinking water for passerines and bats. Sage grouse fence-strike mortalities would be reduced with flagging to make fence wire more visible.

3.3.5.5. Impacts from No Action Alternative

Vegetation Treatments: Under the No Action Alternative, resource conditions are expected to stay the same with continual pinyon pine and juniper encroachment on sagebrush communities and decline in the production, vigor, and diversity of grass, forb, and shrub species. Forage values would continue to decline in terms of both nutrition and palatability. The increase of pinyon pine, juniper, and decadent sagebrush stands could result in large, uncontrolled wildfires that have the potential to eliminate large tracts of existing habitat for special status species. Additionally, the spread of pinyon pine and juniper trees on sagebrush communities potentially limits available strutting grounds, nesting and summer habitats, possibly resulting in a decline in local sage grouse populations.

Range Improvements: Under the No Action alternative, there would be no disturbance to special status species and their habitat. Sage grouse mortalities related to fence collisions would remain the same.

3.3.6. Wild Horses and Burros

A portion of the Newark and Hungton watershed lies within the Triple B Herd Management Area (HMA). The Appropriate Management Level for the entire 1,225,000 acres of the HMA is 250–518 wild horses. The last gather for the Triple B HMA occurred in July 2011 when 1,200 wild horses were removed. Following this gather a population of approximately 498 wild horses (based on 2012 Census) resided within the Triple B HMA.

The southern portion of the Newark watershed lies within the Pancake HMA. The appropriate Management Level for the entire 855,000 acres of the HMA is 240–493 wild horses. The last gather for the Pancake HMA occurred in January 2012 when 645wild horses were removed. An emergency gather occurred in September 2012 in the southern portion of the Pancake HMA when 124 wild horses were removed. A population of approximately 1,082 wild horses (2012 Census) reside within the Pancake HMA.

The Huntington watershed lies within the Diamond Hills South HMA. The Appropriate Management Level for the entire 19,000 acres of the HMA is 10–22 wild horses. A population

of approximately 298 wild horses (2012 Census) reside within and outside the Diamond Hills South HMA.

3.3.6.1. Impacts from Proposed Action

Vegetation and range improvement projects that occur within the three Herd Management Areas (HMAs) would have minimal effects to wild horses. The wild horses may experience temporary displacement during implementation but would return to the area after the project was complete. Long term impacts would benefit wild horse habitat through improved rangeland health and additional water sources.

3.3.6.2. Impacts from No Action Alternative

No impacts are expected. The existing condition of vegetation and water sources in the area would remain unchanged.

3.3.7. Livestock Grazing

Livestock grazing occurs throughout both watersheds and includes sheep and cattle grazing. Livestock grazing operations in eastern Nevada developed during the mid- to late-1800s. The Ely RMP/EIS, to which this document is tiered, summarizes livestock grazing history in the region on pages 3.16-1 to 3.16-3.

3.3.7.1. Impacts from Proposed Action

All grazing permits in both watersheds were renewed through term permit renewal EAs that included Standard Determination Documents that evaluated grazing effects. The Newark & Huntington Watershed Analysis did not identify any impacts to the watersheds that required a need to reduce or increase permitted livestock use at this time.

The mandatory rest period following vegetation treatments would be for a minimum of two years or until vegetation management objectives have been met as identified in the design features for vegetation treatments and the crested wheatgrass management strategy. The rest period may be extended pending the rate of progress towards vegetative establishment. The rest period is a short term impact to grazing operations and is necessary in order to ensure the establishment, protection, and long-term viability of the vegetation enhancement projects. Temporary fencing would be used to facilitate these rest periods, and allow for use in other areas of a allotment. Livestock would also be herded or otherwise controlled to avoid the treatment units while they are being rested.

The proposed range improvements would improve distribution of livestock across the landscape, and potentially reduce impacts to nearby water sources by providing additional water sources.

3.3.7.2. Impacts No Action Alternative

Under the No Action Alternative, there would be no short term impacts to the current livestock grazing on the allotments. In the long term, forage species for livestock would continue to diminish as pinyon pine, juniper, sagebrush, and undesirable annuals increase in density and desirable grasses and forbs decline. Forage quality and quantity would decline over the long term which could result in adjustments to livestock grazing permits.

3.3.8. Recreation

The project area is a regionally important recreation destination in Nevada. The natural and cultural diversity within the rugged hills provides the basis for a wide variety of recreational activities and is important to the area‘s recreation and tourism industries. Visitors enjoy a variety of recreational opportunities such as dispersed camping, driving along scenic roads, hiking, mountain biking, horseback riding, and fishing and hunting. Motorized recreation in the area can be divided into five user groups including passenger vehicles, four-wheel drive vehicles, all-terrain vehicles, utility vehicles, and off-highway motorcycles. Some users, depending primarily on mode of transportation, prefer roads, some trails, and some prefer the freedom to traverse the environment through non-motorized means.

3.3.8.1. Impacts from Proposed Action

Visitors would be subject to increased noise, dust, and treatment traffic from vegetation activities as the proposed treatments are implemented. Smoke and noise from prescribed burning or mechanical treatments could negatively affect the quality of the recreation experience in the short term. However, smoke from prescribed burning also occurs outside of the normal camping season, which minimizes the number of visitors subjected to this effect. The primary impact would be from fall prescribed burning that affects motorists enjoying driving for pleasure for fall color tours and hunting activities. Short term changes caused by increased treatment and prescribed fire activities in specific areas causes a shift of recreational use to other non-affected areas. This may impact other dispersed sites. Short term changes to the landscape in key areas during the life of the project may detract from the appearance and suitability of these sites to provide a quality recreation environment during the annual, concentrated high use season. After treatments are implemented, no treatments would be permanently closed to recreation use. Motorized travelers would be expected to stay on existing roads and trails.

Recreation users may also notice a shift from a denser vegetation setting to a more open one as treatments are completed. There may be more vistas of previously hidden natural and man-made features such as rock outcroppings, ridge lines, homes on private land, abandoned mines, pipelines, and roads. Vegetative improvement to wildlife habitat may provide more opportunity for wildlife viewing and hunting opportunities.

3.3.8.2. Impacts from No Action Alternative

Under the No Action Alternative, no immediate direct impacts to the recreational opportunities would occur. Recreational opportunities such as hunting and wildlife viewing would be impacted in the long term due to declining habitat conditions for mule deer, elk and sage grouse. The potential exists for impacts to other recreational opportunities in the long term if a large, uncontrolled wildfire were to occur.

3.3.9. Lands with Wilderness Characteristics

Affected Environment

On June 1, 2011, the Secretary of the Department of the Interior issued a memorandum to the BLM Director that in part affirms BLM’s obligations relating to wilderness characteristics

under Sections 201 and 202 of the Federal Land Management Policy Act. The BLM Released Manuals 6310 and 6320 in March 2012, which provide direction on how to conduct and maintain wilderness characteristics inventories and provides guidance on how to consider whether to update a wilderness characteristics inventory.

The primary function of an inventory is to determine the presence or absence of wilderness characteristics. An area having wilderness characteristics is defined by:

- Size - at least 5,000 acres of contiguous, roadless federal land,
- Naturalness — the degree to which an area generally appears to have been affected primarily by the forces of nature with the imprint of people's work substantially unnoticeable, and
- Outstanding opportunities for solitude or primitive and unconfined types of recreation.
- The area may also contain supplemental values (ecological, geological, or other features of scientific, educational, scenic, or historical values).

The Nevada BLM completed the original wilderness review in 1979, and issued an initial wilderness inventory decision in 1980. In the original wilderness inventory, ten units of the 33 that overlap into the Huntington and Newark watersheds were intensively inventoried. None of which were found to possess wilderness characteristics, therefore none were designated as a WSA.

In 2011, the Ely District Office BLM began updating the lands with wilderness characteristics (LWC) inventory on a project-by-project basis until there is a land use plan revision. The LWC Inventory update was completed for these two watersheds in 2011-2012, for this and other projects. No update was completed for the Diamond Mountains. There are 44 inventory units that overlap into the two watersheds. Of this, only one unit (NV-040-034-2012) was found to possess LWC. This unit was found to possess sufficient size, naturalness, outstanding opportunities for solitude and primitive and unconfined recreation, and supplemental values (geologic, scenic).

There has not been a land use plan amendment to determine if, or how, this unit of LWC would be preserved for its wilderness characteristics.

3.3.9.1. Impacts from Proposed Action

Two proposed treatment areas overlap the LWC unit (NV-040-034-2012): Buck Mountain and Bald Mountain treatment units. These areas would be mechanically and/or chemically treated to reduce PJ and sagebrush, and then seeded. These actions would impair the naturalness of the unit by creating man-made impacts to the land. Likely, these impacts would naturalize over time – on about a 5-20 year period, depending on the method used. Edging the treatment units to allow for "stringers" of PJ, or other actions to minimize impact to the visual component, would also aid to allow the treatments to appear more natural. There would also be a short-term impact to opportunities for solitude, and possibly recreation, as the treatment(s) are being implemented, with crews on the ground. Areas may be closed to public access as heavy machinery is in the area or herbicide is being applied, thereby impacting opportunities for recreation. Both of these impacts would be limited to the location of the treatment and only for the duration of the treatment. There are no anticipated impacts to size.

3.3.9.2. Impacts from No Action Alternative

Under the no action alternative, the proposed actions would not be implemented within the proposed project areas as a result of this EA. There would be no anticipated impacts to size, naturalness, or opportunities for solitude or primitive recreation.

3.3.10. Climate Change

According to the Global Climate Change Impacts in the United States 2009 Report produced by the U.S. Global Change Research Program, the Newark and Huntington Watersheds are located in the Southwest region of the United States. The report states that recent warming has occurred in this region more rapidly than in other areas of the nation. The warmer temperatures and drier conditions that are being observed in some areas of the Southwest are predicted to potentially alter the vegetative distribution across the region, including possible increases in invasive species. The increased temperatures are also predicted to support increased wildfire activity.

3.3.10.1. Impacts from Proposed Action

The Proposed Action incorporates several vegetation treatments targeted at reducing dense fuel loads primarily through the removal of pinyon pine and juniper trees from areas traditionally occupied predominantly by sagebrush. This may serve to counteract some of the potential increases in wildfire risk if, in fact, overall warming and drying occurs within the project area as predicted. The removal of the trees in large areas would eliminate some of the existing shading, but would allow additional moisture and space for growth for the remaining sagebrush and other smaller vegetation. The carbon sink properties lost with any tree removal may at least be partially offset by the increased vigor and abundance of the sagebrush and smaller vegetative species. The remaining vegetation treatments are targeted at improving regeneration rates in existing stands of high elevation tree species or rejuvenating aging stands of sagebrush and would not be impacted as directly by any of the predicted trends. Exact quantification of any of these impacts relative to the overall warming trend in the region is not possible due to the lack of site-specific research and general controversy surrounding the topic of climate change however, the scale and lengthy timeframe of expected implementation reduces effects. The proposed action is not expected to contribute to climate change since the treatments proposed are similar to existing impacts and naturally occurring processes, such as fire. The proposed riparian projects and range improvements are not anticipated to be affected by any of the predicted climate change patterns.

3.3.10.2. No Action Alternative

The No Action Alternative does not include any vegetation treatments and would not potentially counteract any of the trends predicted to support increased risk of wildfires. However, exact quantification of any of these impacts relative to the overall warming trend in the region is not possible due to the lack of site-specific research and general controversy surrounding the topic of climate change.

Chapter 4. Cumulative Effects

This page intentionally
left blank

4.1. Introduction

AAs defined by the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA, Cumulative Effects (40 CFR 1508.7) are defined as, "The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

The general area reviewed as the Cumulative Effects Study Area includes the entire Newark and Huntington watersheds and areas within the surrounding watersheds, including Ruby Valley, Long Valley, Diamond Valley, Railroad Valley, and Jakes Valley. In addition to the site specific analysis included below, a comprehensive cumulative effects analysis can be found on pages Section 4.28 of the Ely Proposed Resource Management Plan/Final Environmental Impact Statement (November 2007).

4.1.1. Past Actions

Livestock grazing operations in eastern Nevada developed during the mid to late 1800s.

Range improvement projects have been implemented across the CESA to improve grazing management, including spring developments, fencing, and vegetation treatments.

The Ely RMP/EIS summarizes wild horse history in the west, specifically on the Ely District, on pages 3.8–1 to 3.8–7. Wild horse use has occurred throughout the CESAs since the 1800s. Wild horse gathers have occurred in the project area.

Nevada is subject to variable precipitation with frequent drought periods. The most recent drought periods occurred in 2007–2008, and 2012–2013.

Oil and gas exploration has occurred throughout the CESA, however no wells have gone into production. The Ely RMP/EIS summarizes the history of oil and gas exploration on pages 3.18–7 to 3.18–9.

Highway 50 crosses the CESA. This highway is fenced on both sides and serves as a pasture boundary for several pastures.

The Falcon to Gondor Utility Corridor also crosses the CESA. There are two major powerlines in this east-west corridor.

4.1.2. Present Actions

The Bald Mountain Mine is actively mining gold within the CESA and partially within the Pygmy Rabbit CESA. Additional gold exploration is occurring at the Illipah Mine site, the Pan Project, the Gold Rock Project, and the Bald Mountain Mine area.

Oil and gas leasing is on-going in the CESA.

The One Nevada Line (OnLine) power line is in the Southwest Intertie Project (SWIP) corridor crossing north to south through Jakes Valley.

The Loneliest Highway Special Recreation Management Area occurs along Highway 50. Recreational activities in the CESA include dispersed hunting, camping, wildlife viewing, hiking, and fishing.

Illipah Recreation Area occurs at Illipah Reservoir. Its primary uses are fishing, camping, and picnicking.

4.1.3. Reasonably Foreseeable Future Actions

Livestock grazing and wild horse use and management would be expected to continue throughout the CESA.

Further oil and gas leasing and exploration are expected in the area.

Occasional wildfires are likely to occur in the area.

Dispersed recreation is expected to continue in the CESA with recreational activities concentrating at the Illipah Recreation Area and along Highway 50.

Bald Mountain Mine has proposed an expansion of its existing mining operation; and a Plan of Operations for mining has been submitted for the Pan Mine in southern Newark Valley and a Plan of Operations for mining has been submitted for the Gold Rock Mine in Railroad Valley. American Vallenium has also submitted a Plan of Operations for mining in near the southern bounary of Newark Valley.

4.2. Cumulative Effects Summary

4.2.1. Soil Resources

Past actions, such as from wildfires, have increased soil erosion on areas outside the proposed project areas. Past actions combined with the lack of treatments within the proposed project area has increased soil erosion vulnerability, especially if large unplanned disturbances such as wildfires, wind events or precipitation events were to occur. The implementation of present and future fuels treatments would increase soil stability in the area as vegetative diversity and ground cover is increased. Through planned treatments, natural disturbances would be smaller in size and manageable and would reduce soil erosion levels over the long term. Cumulative impacts from implementing the Proposed Action combined with present and future actions would improve the overall stability of soils and their resistance to erosion. Improving soil cover and stability by improving vegetative conditions through the implementation of various treatments would improve the overall watershed stability which would indirectly reduce cumulative impacts.

4.2.2. Vegetation

Under many situations, uncontrolled wildfires affect continuous expanses of vegetation and habitat, leaving minimal mosaic to the burn pattern. Rehabilitation efforts are generally expensive and difficult due to the lack of species diversity in many plant communities that have burned. Long term changes in ecological conditions affect vegetative diversity and habitat quality. Past actions to adjust livestock and wildlife use on vegetation combined with present and future actions to implement various fuels and vegetation treatments would allow for an improvement in vegetative

recruitment, establishment, production, vigor and diversity and help facilitate the establishment of the natural (historic) fire regime and improve habitat conditions for many species of wildlife. Wildfires and past range improvement projects, combined with this project will improve the fire regime condition class of the area and maintain or improve vegetative diversity and abundance.

4.2.3. Non-native Invasive and Noxious Species

The primary cumulative impact to the CESA would be if cheatgrass increased the fire frequency regime and an increasing area was converted to cheatgrass monoculture. The design features of the Proposed Action should prevent fine fuel loads from cheatgrass and prevent cheatgrass monocultures from establishing.

4.2.4. Fish and Wildlife Resources, including Migratory Birds and Special Status Species

Previous actions, such as past seedings and water developments, have increased forage production, water availability and distribution for wildlife. Activities such as livestock and wild horse grazing, road construction and maintenance, fence construction, uncontrolled wildfire, and recreation activities including off-highway travel, camping and hunting have potentially altered wildlife habitat or affected wildlife behavior and distribution. Most of these activities are expected to continue to some degree in the future and would continue to impact wildlife in a similar fashion. However, as additional forage is provided through vegetative treatments, competition for resources and habitat would decrease, potentially providing cumulative benefits to wildlife in the long-term.

4.2.5. Livestock Grazing

Past, present, and reasonably foreseeable future actions combined with treatments included in the Proposed Action would mitigate impacts to vegetation, soils and water relationships by improving the health, vigor and recruitment of perennial grasses, forbs and shrubs; increasing ground cover to improve soil stability, improve water quality by reducing erosion potential; and promote rangeland health and economic stability by increasing the quantity and quality of forage and reducing competition between livestock, wild horses and wildlife. Over a period of time, forage conditions would improve, which would benefit long term livestock grazing management.

This page intentionally
left blank

Chapter 5. Tribes, Individuals, Organizations, or Agencies Consulted

This page intentionally
left blank

This preliminary EA is being provided for public review and comment via web posting. Notification letters are being sent to those parties on the Ely District Range Management Interested Public List.

Tribal Coordination Letters and the preliminary EA are also being provided to tribes that the Ely District does government to government consultation.

This page intentionally
left blank

Chapter 6. List of Preparers

This page intentionally
left blank

Table 6.1. List of Preparers

Name	Title	Responsible for the Following Sec of this Document
Mindy Seal	Assistant Field Manager/Project Lead	Environmental Justice, Land Use Planni Compliance
Matt Rajala	Fuels Specialist	Fuels, Vegetation
Mark D'Aversa	Hydrologist	Air, Soil, Water, Riparan/Wetland Areas
Lisa Gilbert	Archeological Technician	Archeological, Historic, and Paleontolo Resources
Ruth Thompson	Wild Horse Specialist	Wild Horses
Marian Lichtler	Wildlife Biologist	Wildlife, Migratory Birds, Special Statu
Erin Rajala	Outdoor Recreation Planner	Recreation, VRM
Miles Kreidler	Geologist	Minerals
Elvis Wall	Native American Coordinator	Native American Religious Concerns, T Coordination
Melanie Peterson	Environmental Protection Specialist	Wastes, Hazardous & Solid
Chris Mayer	Supervisory Rangeland Management Specialist	Range, Grazing
Emily Simpson	Wilderness Planner	Wilderness, Lands with Wilderness Cha

This page intentionally
left blank

Appendix A.

A.1. Treatment Methods

A.1.1. Methods for tree removal or woodland restoration

Tree removal would be targeted in areas where tree establishment and density is at undesired levels and should be thinned or removed in order to achieve management goals listed in the Ely RMP. Examples include pinyon pine (*Pinus monophylla*) and juniper (*Juniperus spp*.) species establishment into sagebrush communities or establishment of mixed conifer species into aspen communities.

A.1.1.1. Group tree removal - Chaining

Chaining would be accomplished using the Ely Anchor Chain (Navy ship anchor chain with 40-120 pound links and 18 inch railroad iron welded perpendicular to the chain link) and/or smooth chain (chain with 40-120 pound links) pulled between two bulldozers. Chaining treatments would consist of one or two-way chaining (chaining the trees twice, once from one direction, then from a different direction). Islands of untreated trees would be left to provide escape and thermal cover for wildlife. Areas that are chained would be seeded prior to completing the final pass. Biomass may be left on site for natural degradation, treated with a secondary treatment (i.e. prescribed fire) or may be made available for removal and use after the implementation of the treatment.

Chaining would be used where decadent sagebrush and heavy to moderate encroachment of pinyon pine and juniper are reducing the proportion of younger brush, grasses, and forbs within an area. Chaining is a desirable method for incorporating seed into a diverse seedbed to promote revegetation of the area. In addition to seed applied through an aerial method, seed dribblers attached to the track of the bulldozer can be used to press antelope bitterbrush (*Purshia tridentata*) seed into the soil to promote establishment.

Chaining would not be desirable in areas where selective tree removal is needed to meet objectives and treatments should be designed to avoid stands of mountain mahogany. For the purpose of removing pinyon pine and juniper trees and maintaining sagebrush communities, chaining would not be a desirable method in areas with less than 10% tree cover. Chaining would be preferred on slopes of less than 20%, however may be considered on slopes up to 30%.

A.1.1.2. Individual tree removal - Mastication or other mechanical methods

Mastication and mechanical removal of pinyon pine and juniper includes the use of some form of cutting head attached to a piece of machinery from the size of a light duty skid steer or larger. The cutting heads can be of various designs, some of which chip the tree, cut and pile the tree, and others that cut, lop, and scatter the tree. The potential for biomass removal would depend on the type of method used. Biomass, including fuelwood, would be made available for public use to the greatest extent possible. Biomass created from whole-tree cutting methods would be consolidated into piles and disposed of later through prescribed burning, spread out using a lop and scatter technique, or hauled offsite. Biomass created from mastication equipment would be left onsite to degrade by natural means. Scatter height of cut limbs and trees for areas treated

with lop and scatter methods would be a maximum of 24 inches. Burning of piles would take place when there is a low chance for fire spread and when soil moisture levels are sufficiently high to prevent hydrophobicity, generally October through April. A burn plan would be written and approved prior to any prescribed burning. Following treatment, the site would be inspected to determine if excess biomass left onsite in certain locations would restrict movement for sage grouse and other wildlife. If this occurs the biomass within these areas may be piled and/or burned or removed mechanically.

Mastication or mechanical tree removal is a desirable method for selective removal of pinyon pine and juniper (thinning areas or areas with desirable tree species intermixed) with minimal impact to existing brush, grasses and forbs. However, mastication loses efficiency as tree density and size increases. Where pinyon pine and juniper has encroached into sagebrush communities and treatments are implemented, maintain pinyon pine and juniper stringers on the benches for Ferruginous hawk nests. This method can incorporate some seed and prepare a seed bed in areas, but only where the equipment travels. Mastication or mechanical tree removal may be effective in areas where tree densities fall below the cover threshold for chaining. Chipping equipment is preferable in areas where remaining biomass is to be minimized (chips versus whole trees). Whole-tree cutting methods can be utilized for biomass removal and utilization.

When using this method, chip layers resulting from mastication should be restricted to six inches or less. Mastication or mechanical tree removal would be preferred on slopes of less than 20%, however may be considered on slopes up to 30%. If biomass is to be removed from the project site, accommodations would need to be made for vehicles to be able to access the site for loading and vegetation removal prior to authorization.

A.1.1.3. Hand Cutting

Hand cutting would involve the use of crews to selectively hand cut the trees within the treatment area. Trees would be lopped and scattered across the treatment area or piled. Cut tree material in sage-grouse habitat would be scattered or piled next to the tree bole to allow movement of sage-grouse through or around the area. Remaining biomass may be left on site, removed for utilization, or burned. Scatter height of cut material for areas treated with hand cutting would be a maximum of 24 inches. Following treatment, the site would be inspected to determine if excess biomass left onsite in certain locations would restrict movement for sage grouse and other wildlife. If this occurs the biomass within these areas may be piled and/or burned or removed mechanically. Hand cutting may be used as a pretreatment or as a component of other treatments.

Hand cutting is a desirable method for the selective removal of pinyon pine, juniper, or other tree species (thinning areas, areas with desirable tree species intermixed, or buffering sensitive resources) with minimal impact to existing brush, grasses and forbs. It may also be an effective method in areas where tree densities fall below the cover threshold for chaining or where slope restricts the use of chaining, mastication, and other mechanical methods. Where pinyon pine and juniper has encroached into sagebrush communities and treatments are implemented, maintain pinyon pine and juniper stringers on the benches for Ferruginous hawk nests. Hand cutting is preferable in areas where remaining biomass is to be piled for burning later or lopped and scattered to maximum height of 24 inches. Hand cutting would not be used to incorporate seed or prepare a seed bed.

A.1.2. Mechanical Methods for Sagebrush Restoration

Mechanical sagebrush treatments would target late seral sagebrush sites (Wyoming, Black, and Mountain sagebrush) where older and decadent sagebrush is increasing and the herbaceous understory is diminishing.

A.1.2.1. Dixie Harrow

The Dixie harrow consists of a large spike-tooth harrow pulled by a four-wheel drive rubber-tired tractor equipped with a three-point hitch. The Dixie harrow can be used in sagebrush or other small shrub stands and offers a high degree of control. Factors such as the pattern of treatment, residual density of sagebrush, seeding, and timing can all be controlled. Sagebrush mortality levels can be adjusted through the removal or addition of tines. Within these units, mechanical removal of pinyon pine and juniper may be utilized to remove the trees prior to treatment, as opposed to avoiding them. Seeding can be conducted within the same pass as the treatment with the use of a broadcast seeder attached to the back of the equipment pulling the Dixie harrow. Any biomass resulting from this treatment would be left on site for natural decomposition.

The Dixie harrow would be desirable for reducing shrub cover, increasing the vigor of existing shrubs, and reducing competition to existing grasses and forbs. It allows incorporation of seed into a seedbed to promote re-vegetation of an area. Equipment would have to negotiate around trees if they aren't removed prior to treatment and treatment areas would be restricted to areas that are less than 20% slope.

The Dixie harrow may be used as a secondary treatment within areas that have been treated for removal of pinyon pine and juniper to further reduce the shrub component in order to achieve the desired mosaic pattern and percentages of seral states listed within the objectives for each treatment area. When used as a secondary treatment, the amount of biomass remaining on site would restrict the effectiveness of the Dixie harrow.

A.1.2.2. Roller Chopper

Roller chopper treatment involves the use of a large drum with paddles attached that is pulled behind a piece of machinery such as a tractor or bull dozer. The weight of the drum can be adjusted through the addition of water to the drum. The treatment crushes and chops brush and small trees. Seeding can be conducted within the same pass as the treatment with the use of a broadcast seeder attached to the back of the equipment pulling the roller chopper. Any biomass resulting from this treatment would be left on site for natural decomposition.

The roller chopper is desirable for reducing shrub and small tree cover and is effective at incorporating seed into a seedbed to promote re-vegetation of the area. The roller chopper can be used in areas where small trees are present up to five inches in diameter, but would need to negotiate around large pinyon pine and juniper if not cut prior to treatment. Equipment would be restricted to areas that are less than 20% slope and soils that contain a low amount of rock fragments.

The roller chopper may be used as a secondary treatment within areas that have been treated for pinyon pine and juniper removal in order to further reduce the shrub component to achieve the desired mosaic pattern and percentages of seral states listed within the objectives. When used as a

secondary treatment the amount of biomass remaining on site may (depending upon diameter) restrict the effectiveness of the roller chopper.

A.1.2.3. Mowing

Mowing involves the use of a mowing deck pulled behind a tractor equipped with a power take-off. Its use would be limited to sagebrush and other small shrubs in areas that have fairly gentle terrain and with no large rocks or downed trees. Within these units, hand cutting of trees may be utilized to remove the trees as opposed to avoiding them. Any biomass resulting from this treatment would be left on site for natural decomposition.

Mowing is a desirable method for reducing shrub cover, increasing the vigor of existing shrubs, and reducing competition to existing grasses and forbs. The height to which the target species is cut may range from ground level to 12-15 inches high. The degree of sagebrush mortality and re-growth can be controlled by adjusting the height of the cutting blades. Cutting to less than four inches would likely result in 85-100% mortality. Leaving greater than a 10-inch height may result in only 40-60% mortality. Mowing is not effective at incorporating seed into the soil or preparing the seedbed and would have to negotiate around pinyon pine and juniper if they are not removed prior to treatment. Mowing treatments would be restricted to areas that are less than 20% slope and a relatively low amount of surface rock.

Mowing may be used as a secondary treatment within areas that have been treated for removal of pinyon pine and juniper to further reduce the shrub component in order to achieve the desired mosaic pattern and percentages of seral states listed within the objectives for each treatment area. When used as a secondary treatment the amount of biomass remaining on site would restrict the effectiveness of the mowing treatment.

A.1.3. Chemical Treatments

All chemical treatments would be in accordance with the specifications listed on the label for the chemical being used and the Final Programmatic Environmental Impact Statement (PEIS) – Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States (2007) and associated Record of Decision. Agency and contractor personnel involved with the application of pesticide would be appropriately licensed as required by the EPA, BLM, and the state of Nevada. Equipment utilized for application would be properly equipped and calibrated for dispensing the herbicide. For aerial applications of herbicide the pilot would be required to have a current Nevada pesticide applicator's license and the aircraft would need to be equipped to precisely dispense the herbicide. The applicator would also be required to have a current Nevada pesticide applicator's license. A Pesticide Use Proposal (PUP) would be completed and authorized prior to completing the treatment. Standards and guidelines for storage facilities, posting and handling, accountability and transportation as listed in BLM Handbook 9011 (Pesticide Storage, Transportation, Spills and Disposal) Section II would be followed. Items listed in the Material Safety Data Sheets (MSDS) provided for all chemicals used would also be adhered to.

A.1.3.1. Tebuthiuron

Tebuthiuron is a pesticide used to control woody species and may be applied in accordance with all applicable federal, state and local laws, regulations and guidance. The preferred time of application would be during the fall prior to the first snow fall, however, the herbicide could

be applied any time as long as the ground is not frozen, water saturated, or snow covered. The project would be conducted during calm weather conditions to avoid herbicide (pellet) drift.

The project design would be in compliance with the buffers identified within the Standard Operating Procedure and Appendix C table C-16 of the Final Programmatic Environmental Impact Statement (PEIS) – Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States (2007). Standard Operating Procedures and Mitigation Measures Identified in the Record of Decision for the Final Programmatic Environmental Impact Statement (PEIS) – Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States (2007) would be incorporated into the project design at implementation. The above incorporated project design features provide prescriptions for herbicide treatment along with appropriate mitigating measures. Other project design features may be added to protect resources as site specific conditions warrant prior to treatment.

Herbicide effectiveness of Tebuthiuron depends on the soil depth and texture and the amount of clay and organic matter content of the soil. Soil samples would be collected and tested at various locations in major vegetation types within the treatment area to determine soil properties and appropriate herbicide application rates in order to meet the objectives of the project.

Tebuthiuron is proposed to achieve one of three objectives; 1) to reduce pinyon pine and sagebrush cover within mountain sage communities to release deep rooted shrubs, grasses and forbs, 2) to reduce sagebrush cover in a spotty and mosaic fashion and at application rates that result in less than 100% mortality within black and Wyoming sagebrush sites, and 3) to reduce sagebrush competition with grasses and forbs within areas where a desirable understory is already present. Application rates would be determined through soil analysis and the objectives for the specified treatment area.

Biomass remaining after the effects of the herbicide are realized may be left on site for natural decomposition, treated with prescribed fire, or made available for fuelwood. If made available for fuelwood, the Material Safety Data Sheet and any other applicable information must be reviewed to ensure the safety of combustion of wood that has absorbed the chemical and must be made available to the public.

Tebuthiuron may be used in areas where shrub and tree cover would need to be removed in order to release grasses, forbs and deep rooted woody species (rate dependent). Tebuthiuron may be used in areas that terrain limits other mechanical treatments. However, Tebuthiuron should not be used in areas that have soils with clay content greater than 30% or that have surface water or an elevated groundwater level. Treatments should be designed to avoid stands of mountain mahogany. Tebuthiuron may be used as a secondary treatment to further reduce the shrub component to achieve the desired mosaic pattern and percentages of seral states listed within the objectives for each treatment area.

A.1.3.1.1. Tebuthiuron for Suppression of Pinyon Pine and Juniper

Target areas for herbicide treatment would be areas where pinyon pine and juniper have established on sagebrush ecological sites and late seral pinyon pine and juniper woodland sites where a desirable understory is established. Following application of the herbicide in doses sufficient to control juniper it would be expected to have near 100% mortality of sagebrush and pinyon pine. This treatment should be restricted to areas that have a desirable understory of grasses established that are resilient to the herbicide.

A.1.3.1.2. Tebuthiuron for Suppression of Sagebrush

Target areas for herbicide treatment would be areas where older, decadent, even-aged stands of sagebrush exist with a desirable understory. Areas with Basin Wildrye (*Leymus cinereus*) as a dominant species as identified within the Ecological Site Description (ESD) may be treated to reduce sagebrush cover and promote a desirable understory. Application of herbicide in this instance would be done at rates that would result in partial control of sagebrush. The method of application would be dictated by the treatment size and would be done in accordance with the applicable label and the Final Programmatic Environmental Impact Statement (PEIS) – Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States (2007). Following application of the herbicide in such doses it would be expected that deep rooted shrubs (antelope bitterbrush) and trees (juniper) would not be substantially impacted and existing grasses and forbs would be released.

A.1.3.2. 2,4-D and Picloram for Rabbit Brush Suppression

Treatment units identified for the removal of rubber rabbitbrush would be treated with a mechanical treatment (mowing), followed by a chemical treatment of Picloram and 2,4-D within the project area in order to reduce the densities of rubber rabbitbrush communities on sagebrush and basin wildrye dominated ecological sites. The project design would be in compliance with the buffers identified within the Standard Operating Procedures and Appendix C table C-16 of the Final Programmatic Environmental Impact Statement (PEIS) – Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States (2007). If areas around wetland and riparian areas are to be treated they would only be treated with a pesticide registered with the Environmental Protection Agency for aquatic applications. Wind speeds, precipitation events and other environmental factors would be considered during the application processes to prevent herbicidal drift or potential runoff.

Picloram (active ingredient: 4-amino-3,5,6-trichloro-2-pyridinecarboxylic acid) is a highly translocated, selective herbicide active through both foliage and roots on many broadleaf herbaceous weeds and woody plants. 2,4-D (active ingredient: 2,4-Dinitrotoluene) is a selective, foliar-absorbed, translocated, phenoxy herbicide used mostly in post-emergence applications and is effective in controlling many annual and perennial broadleaf weeds. Once absorbed 2,4-D is translocated within the plant and accumulates at the growing points of roots and shoots where it inhibits growth. Application rates and procedures would follow directions as listed on the herbicide specimen labels for rubber rabbitbrush. Target areas for both mowing and herbicidal treatments would be those areas where rubber rabbitbrush has established on sagebrush and basin wildrye ecological site.

The preferred time of application would be in late May or early June. Rubber rabbitbrush can be susceptible to herbicides such as 2,4-D, but results vary widely according to the type of treatment, rate of application and the date and year of treatment. Relative effectiveness also depends on the amount of new twig growth and subsequent rainfall. The highest success rates are obtained when plants have at least 3 to 4 inches of new growth and when soil moisture exceeds 13 percent. Rubber rabbitbrush may be less susceptible to herbicides during drought years when new growth may be minimal (Tirmenstein, D. 1999). The project area would be inspected prior to the chemical treatment to solidify those areas targeted for each specific treatment in order to achieve the desired resource management objectives.

A.1.4. Prescribed Fire

Prescribed fire can be used to control certain species, manage fuel loading, and maintain vegetation community types that are fire dependent, and enhance growth, reproduction, or vigor of certain species. Target locations would be chosen in sites with existing native perennial understory species. These target areas would exhibit characteristics where positive natural re-establishment of native grasses and favorable establishment of seeded grasses are most likely to occur. Given the presence of a healthy and diverse understory of native perennial species and a lack of non-native invasive plant species, it is less likely that invasive plants would establish in these areas.

Vegetation targeted for prescribed fire includes aspen, mixed conifer (other than those types listed under incidental or avoidance), mountain mahogany, mountain sagebrush, and pinyon pine and juniper woodlands. Incidental vegetation types would include sagebrush (Wyoming, black, and low), ponderosa pine and vegetation within riparian areas. Inter-Mountain Basins Subalpine Limber-Bristlecone Pine Woodland is mapped within some treatment units. These vegetation types would be inventoried where mapped and it would be determined whether or not Bristlecone Pine (*Pinus longaeva*) is present. If present the stands would be avoided with prescribed fire. If not present the stands would be considered an incidental vegetation type. Vegetation types that would be avoided with prescribed fire are limber pine, bristlecone pine, and salt desert shrub communities. Prescribed fire may be used as a secondary treatment to achieve the objectives listed for individual treatment areas. Prescribed fire may also be used to reduce biomass left on site. In the event that prescribed fire is utilized in areas where antelope bitterbrush is present, fire severity and timing of ignition would be limited to minimize impacts to the antelope bitterbrush.

Ignitions would occur within the specific prescribed burn project boundary designated within the treatment units. Prescribed fire that moves outside of the prescribed burn project boundary but remains within the treatment unit boundary may be managed to accomplish resource management objective consistent with those listed for the treatment unit. Prescribed fire that moves outside of the treatment unit boundaries would be fully suppressed.

Ignition would be strategically timed to best reduce fuel hazards to acceptable levels and benefit ecological system health. Fuel moistures and atmospheric conditions would be closely monitored prior to ignitions to achieve the specific levels of fire severity targeted within the objectives and burn plan, maintain the greatest degree of control possible, and prevent adverse impacts from smoke.

A combination of ground and aerial firing (ignition) resources would be used to implement the prescribed burn. Ground firing resources would include drip torches and terra torch where applicable. Clean up and control would also be conducted with the use of drip torches and/or terra torch. Aerial application would be through the use of a Plastic Sphere Dispenser (PSD) machine or helitorch. Aerial fire application would improve efficiency and effectiveness. Safety, fuels properties, current and expected weather, topography (ingress/egress), and holding capabilities would determine the proper fire application. Drainage bottoms would be avoided, where possible, and mosaic patterns would be preferred to block patterns. An approved burn plan would be prepared prior to any prescribed fire. Control lines for prescribed fire would utilize natural barriers as much possible. In the event natural barriers cannot be utilized, tree and shrubs would be cut and removed along prescribed fire boundaries. Vegetation removed along the control line would be piled inside the prescribed fire boundary and burned during firing operations. In some cases control lines would include scraping and/or digging to expose mineral soil. If fire lines are constructed for a prescribed burn, the lines would be rehabilitated after the completion of the

burn. Rehabilitation of the lines may include seeding (by hand or ATV), dragging brush back onto the line, and/or water-barring the fire line.

Prescribed fire may be used in areas where reducing the shrub and/or tree component is desirable to release other desirable vegetation (aspen, grasses, forbs, etc.) and in areas that have a pre-existing understory to reseed the burned area naturally. It may also be used in areas with varying terrain and is the preferred method for aspen and mountain mahogany regeneration. However, boundaries should be designed to avoid sage grouse breeding habitat and any known cultural sites that are susceptible to damage from heat or smoke. Prescribed fire may be used as a secondary treatment to further reduce the shrub component to achieve the desired mosaic pattern and percentages of seral states listed within the objectives for each treatment area.

Planned ignition is a technique that may be employed within the prescribed burn units and may be preferred in prescribed burn units within the wilderness areas (if allowed within the applicable Wilderness Plan). This technique involves igniting a fire in a strategic location, time, and weather conditions to accomplish the specified objectives. Following ignition the fire is allowed to burn as the weather and fuels dictate with suppression forces utilized to keep it within the prescribed burn area boundaries or to protect sensitive resources. This technique may require a series of planned ignitions over several years to accomplish the objectives for any one prescribed fire treatment unit.

A.1.5. Aspen Restoration

Aspen communities within the watersheds not identified elsewhere in the Proposed Action for potential treatment may be targeted for specific aspen restoration activities. Aspen stands outside the treatment units, or within treatment units but not targeted for treatment, are small in scale, often do not appear on satellite imagery due to pixel sizes larger than average stand size, and have not been inventoried. As these stands are identified, they would be eligible for conifer removal treatment. Conifer removal would be done by hand within 75 feet of a living aspen stem (approximately 1.5 times the average stand height) when the conifer component of the stand exceeds a stand density index (SDI) of 20. No new roads or trails would be constructed. Slash would be scattered, piled for burning, or made available for removal by the public as biomass. Slash piles would be burnt following preparation of an approved prescribed fire burn plan.

A.1.6. Seeding

Seeding would occur in areas where the interdisciplinary team determines that existing understory vegetation is not sufficiently abundant (generally in areas with less than 10% relative cover of perennial grass and forb species) or diverse. Seeding would be conducted on the treated sites during the fall or early winter months, preferably prior to snow fall. Seed mixes intended for application in wilderness areas would utilize only native grasses, forbs, or shrubs. Seed mixes for all other areas may consist of a variety of native grasses, forbs, and shrubs as well as non-native perennial species that are able to successfully compete with invasive annuals (e.g., cheatgrass) and are adapted to site characteristics. Preference would be given to using a purely native seed mix, however if it is determined that recurring wildland fire, invasive species establishment, or site characteristics may prevent achieving the treatment unit objectives, non-native perennials may be utilized to reduce these threats.

Seeding would occur through aerial application, ground application with the use of a rangeland drill, broadcast with a tractor or ATV, aerially applied, or applied by hand. Seeding in wilderness

areas would only be applied by hand or aerially. Seeding with a rangeland drill would be restricted to slopes less than 20% and where stone content of the soil permits the effective use of the drill. All areas that are chained for the purpose of pinyon pine and juniper removal would be seeded. Chainings, regardless of the purpose, would be seeded aerially prior to the completion of the final pass of equipment. Other mechanical treatments for pinyon pine, juniper, or sagebrush would have seed applied prior to the treatment occurring. Areas that are to be treated with chemicals would be seeded after the application of the herbicide in most cases and would be determined by the specification and recommendations of the label.

If chaining occurs within mountain sagebrush habitat, antelope bitterbrush seed would be applied using dribblers attached to the dozer.

Seeding may also be utilized as a secondary treatment in burned areas from prescribed fire or fire for resource benefit. These areas would be selected based upon the existence of a desirable understory that would promote natural re-vegetation of the treatment area. In the event that the prescribed burn severity is higher than predicted or the fire moves into a non-target area, seeding may be required to ensure revegetation of the area by desirable species.

A.1.7. Fencing

Fencing may be required to restrict livestock from entering treated areas and fencing may also be required to restrict all large ungulate (wild and domestic) herbivory on treated areas in highly sensitive location such as aspen stands and riparian areas. All fences for the purpose of restricting all ungulate herbivory would be temporary in nature and would remain in place only until the objectives are met.

Aspen stands with low regeneration (fewer than 300 healthy stems per acre under six feet in height) may need to be fenced in order to prevent herbivory on the stand. In general, fencing of aspen stands would be used in open stands where few conifers dominate the overstory (possibly after other treatment) and on gentler slopes. Fencing would be constructed of eight-foot steel pipe rail fencing, electrical fencing, or a slash barrier fencing designed to keep elk, deer, cattle, and domestic sheep out of the treatment area. Fencing would be placed on site in such a way that visual impacts would be minimized to the fullest extent practicable.

Any treatment that is seeded and any prescribed burn would be rested for a minimum of two years following treatment or until the revegetation criteria described in 2.3.1.7, Grazing Restrictions are achieved. To accomplish the overall and treatment-specific objectives, fencing of all or parts of treatment areas may be required. If possible, existing fences would be utilized to restrict livestock from entering treated areas.

Temporary fencing for the purpose of restricting livestock would be installed around treatment areas as needed and would be removed after objectives for the treatment area had been achieved. Additionally, permanent fencing could be installed in coordination with goals defined through the Term Permit Renewal process for a given area.

Steel pipe rail fencing consists of four rails, is self-supporting, non-reflective, and requires no ground disturbance during installation. The fence would be left in place until regeneration objectives are met. At that time the fence may be removed from the stand and available for use elsewhere.

Electrical fencing may be used as a cost-effective fencing alternative that meets the objectives. Electric fencing would typically be three or four strands attached to a fiberglass or metal pole to a height of five or six feet. Corner posts will be constructed of wood. The fencing would be solar powered with a battery box to store electrical charge. The box containing batteries would be camouflaged to the surroundings to the largest degree possible. Electrical fencing would be used until objectives are met and then made available to reuse in other locations.